ABSTRACT

HO, CHIA-LIN. Implicit Leadership Theories: Explicit and Implicit Measures and Their Respective Relationship to Leadership Perceptions and Followers' Characteristics. (Under the direction of Joan J. Michael).

Research on implicit leadership theories (ILTs) has shifted the focus of the leadership literature to acknowledge the important role of followers' cognitive and perceptual processes in the construction of leadership. From the follower-centered perspective, this study focused on the measurement of implicit leadership theories (ILTs) involving the deliberate as well as spontaneous level of information processing and examined how differences in followers' ILTs related to their leadership perceptions and their individual characteristics. An explicit ILTs measure was refined by incorporating items from the two most commonly used ILTs rating scales. As a result in this study, four ILTs dimensions, Malevolence, Charisma, Social Awareness, and Sensitivity, were identified. More importantly, implicit ILTs measures were developed using the Go/No-Go Association Task technique in assessing this implicit cognition and were scored in response accuracy as well as latency. Evidence for the Sensitivity, Dedication and Intelligence traits as ILTs was supported in the accuracy-based scoring of the implicit measures, whereas in the latency-based scoring Dedication, Intelligence, Charisma, and Tyranny were four critical traits in leader identification. In the variable-oriented approach to ILTs, results of the explicit ILTs measure indicated that some ILTs traits had impact on leadership ratings, controlling for follower characteristics. There were individual differences in ILTs ratings in relation to raters' age, gender, and work history. However, with one exception, no relationships of implicit ILTs measures with leadership perceptions and follower characteristics were found in the variable-oriented approach. These findings were not consistent with those in the person-oriented approach for

both the explicit and implicit ILTs measures. Moreover, correspondence between implicit and explicit measures was not revealed in this study. Measurement issues concerning ILTs are highlighted, and implications for future research and organizational practices are discussed.

Implicit Leadership Theories: Explicit and Implicit Measures and Their Respective Relationship to Leadership Perceptions and Followers' Characteristics

by
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DEDICATION

This dissertation is dedicated to my family.

BIOGRAPHY

Chia-Lin Ho was born in Taipei, Taiwan to parents Chin-Chai and Uan Chen Ho. She received her BS in Psychology and BA in Business Administration from the National Cheng-Chi University in Taiwan, her MA in Industrial-Organizational Psychology from the University of North Carolina at Charlotte, and her Ph. D. from the North Carolina State University. Her research focuses on leadership, measurement and evaluation issues, individual differences, and cross-cultural studies. She is a member of the Society for Industrial and Organizational Psychology (SIOP), North Carolina Industrial and Organizational Psychologists (NCIOP), and the Academy of Management. Chia-Lin was a graduate research assistant and course instructor at North Carolina State University and served on the Executive Board of her university's graduate student association. She will join the Abt Associates, Inc. in the Durham, NC office as a senior analyst in August, 2012.

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Introduction

Leadership research has had a long history of emphasizing how leaders play a role in leadership effectiveness. Leaders' dispositional attributes, abilities, and overt behaviors have received a great deal of attention in understanding leadership processes and the findings, consequently, are applied to leader development (Day & Zaccaro, 2007). The dominant view of leadership is referred to as the leader-centered perspective (Meindl, 1995). In spite of the great contributions of the leader-centric approach to leadership, one important element, the follower, has been largely omitted in leadership theory and research. In a holistic view of leadership, leadership is an interaction of three components: the leader's qualities, the follower's attributes, and the situational characteristics (Hollander & Julian, 1969). Leaders and followers all play significant roles in leadership processes. More attention to followers' impact on leaders and leadership processes has been called for in research (Shamir, 2007). In order to understand how followers influence leadership processes, the follower-centered perspective on leadership has emerged (Meindl, Ehrlich, & Dukerich, 1985). From this perspective, followers' cognitive processes and social influences determine the emergence of leadership and its consequences (e.g., Meindl, 1990, 1995). Followers are viewed as co-constructors of leadership and play an active role in the leadership process (Shamir, 2007). Of the follower-centered research, the role of followers' implicit theories in leadership is still an under-researched area (Avolio, Walumbwa, & Weber, 2009; Schyns & Meindl, 2005). The present study focuses on the measurement of implicit leadership theories (ILTs) involving deliberate as well as spontaneous information processing and examines how

subordinates' ILTs play into leadership perceptions and how they relate to individual characteristics.

The Study of Leadership

The phenomenon of leadership has been examined dominantly from the leader-centered perspective. The leader-centered perspective focuses largely on the impact of leader characteristics and behaviors on the emergence of leadership and its consequences (Meindl, 1995). Among the universalist theories of leadership, the trait approach to leadership has been considered as one of the earliest leadership theories (Day & Zaccoro, 2007) and focuses on a variety of leader attributes that promote consistent leadership behavior and effectiveness across situations (Jugde, Bono, Ilies, & Gerhardt, 2002). In the universalist view, two well-known leadership studies, the Ohio State leadership studies and the University of Michigan leadership studies, represent the style approach to leadership that centers on the identification of effective leadership behaviors with no consideration of situational factors (Judge, Piccolo, & Ilies, 2004). The two theoretical approaches view leaders as the causal agent in a leadership process and followers as passive recipients of leadership influence (Shamir, 2007). To take into account things other than leader attributes, contingency theories of leadership recognize there is no single best leadership style across contexts. Fiedler and Macaulay (1998) pointed out four components of situational control that affects leadership effectiveness: leader-member relations, task structure, leader position power, and stress from job and boss. The leader-member relations component acknowledges the role of followers as a moderator of leader impact. The moderator role of followers is also identified by the leader-

member exchange model that emphasizes the effects of leader-member relations on leadership (Schriesheim, Castro, & Cogliser, 1999). Additionally, House's path-goal theory indicates that the effectiveness of leader behaviors depends on followers' needs. Leader influence is moderated by followers' characteristics (House, 1971, 1996). In summary, these theories view followers either as recipients of influence or as moderators of leader impact (Shamir, 2007).

Shamir (2007) also identified that followers have been assigned a more dominant role in the substitutes for leadership theory that specifies the factors that can neutralize or negate leader influences. Among these factors, follower characteristics, such as high need for independence and high in motivation, may substitute for leadership and may result in no effects of leader behavior (Kerr & Jermier, 1978). Although this theory views followers as having a potentially more dominant role, it does not identify the active role of followers given that it gives more attention to neutralizers associated with task and organizational structure. Consequently, the role of followers is not explicitly specified. Besides traditional leadership theories, new leadership theories, such as charismatic leadership (Conger, Kanungo, & Menon, 2000) and transformational leadership theory (Judge & Piccolo, 2004), still focus on characteristics of the leader and view followers as recipients of influence. The dominant leader-centered perspective has been criticized by its exaggeration of the role of leaders and its overstatement of leader impact in leadership processes (Shamir, 2007). Instead, leadership emergence and effectiveness are results of the interaction between the leader, the follower(s), and situational factors (Hollander & Julian, 1969).

In response to criticisms around the dominant leader-centered perspective, Meindl and his colleagues offered a follower-centered perspective on leadership as an alternative approach. This perspective recognizes the importance of followers' cognitive processes and social influences in leadership processes (Meindl, 1990, 1995; Meindl et al., 1985). Lord and his colleagues' (Lord, 1985; Lord, Foti, & DeVader, 1984) also adopted this view in their leadership categorization theory that examines leadership through the lens of cognitive science. This theory acknowledges that leadership is in the eye of the beholder and demonstrates that people use cognitive schemas of leadership to identify and assess leaders. The learned schemas, called implicit theories about leadership, have a large impact on leadership perceptions and responses to leadership. Once an individual fits the perceiver's leadership prototype, he or she is identified as a leader and would be allowed to influence the perceiver's behaviors and attitudes.

In reviewing various roles that followers have occupied in leadership theories, Shamir (2007) went beyond either of the extreme views of leadership to propose a balanced perspective on leadership that considers "both leaders and followers as co-producers of the leadership relationship and its consequences" (p. xii). However, he argued that there was a need for a "reversal of the lenses" by paying more attention to the active roles of followers in the leadership process. Given the facts that the dominant view of leadership is still leader-centered (Shamir, 2007) and the follower is an under-researched source of variance in understanding leadership emergence and effectiveness (Lord, Brown, & Freiberg, 1999), more leadership research from the follower-centered perspective would help to achieve the

balance of our understanding of leadership on both perspectives (Shamir, 2007). In response to this call for research, this study takes the follower-centered perspective in understanding individuals' implicit theories about leadership.

Implicit Leadership Theories (ILTs)

In facing the complexity of the world, human beings create heuristics to efficiently make sense of the environment and tend to fill in gaps of information when gaps arise. Schemas or categories represent heuristics that are in an automatic or unconscious form (Landy, 2008; Rosch, 1978). They have a pervasive effect on how individuals perceive and react to the world (Moskowitz, 2005). In the leadership context, people use their leadership schemas in perceiving and making attributions about leaders (e.g., Epitropaki & Martin, 2004; Lord et al., 1984). Leadership schemas, referred to as ILTs, are knowledge structures held by perceivers that contain social categories used in classifying individuals into leader or non-leader categories (Eden & Leviatan, 1975). These knowledge structures are mental representations of a leader that have been primarily characterized as personality traits (Offermann, Kennedy, & Wirtz, 1994), consistent with trait research in leadership but from the follower perspective (Shondrick, Dinh, & Lord, 2010). Behavior-based ILTs have also been studied (e.g., Lord et al., 1984). These implicit theories about leadership are stored in perceivers' memory and accessed automatically when leadership-related judgments are needed (Lord et al., 1984).

The concept of ILTs was derived from Rosch's (1978) theory of categorization. Categorization theory specifies a hierarchical internal structure of categories along vertical

and horizontal dimensions. Within the structure, category members are related by a pattern of overlapping similarity (i.e., family resemblance), and categories are formed on the basis of the prototypicality of stimuli for the category in question. A prototype is defined as an abstract composite of the most representative attributes of category members. The ability of an attribute to discriminate among categories at a given vertical level is referred to as the cue validity. This probabilistic index increases when the cue is highly associated with the category. Categorization theory recognizes an active role of perceivers in selecting and integrating stimulus information rather than a passive receiver of stimulus characteristics and emphasizes the contribution of characteristics of both a stimulus and a perceiver in forming social cognition.

Derived from Rosch's (1978) categorization theory, Lord et al. (1984) introduced leadership categorization theory that was considered as an early work on ILTs research. Leadership categorization theory describes the structure and the function of leadership categories held by perceivers. These leader categories are organized in a hierarchical structure with three distinct levels that differ in their level of abstraction. The most abstract level, the superordinate level, contains traits and behaviors that differentiate leaders from non-leaders. Below that, basic-level categories are contextualized prototypes used to distinguish among different types of leaders, such as educational leaders and political leaders. Subordinate-level representations are prototypes that distinguish types of leaders within specific contexts, such as liberal political leaders compared to conservative ones (Lord et al., 1984). According to this theory, perceivers use a recognition-based approach to form

leadership perceptions by comparing their leader's attributes observed to their ILTs. In other words, leadership perception is influenced not only by leader behaviors observed but also by a perceiver's implicit beliefs about leadership. Any discrepancies derived from that comparison are assumed to affect the follower's impression of the leader and their subsequent responses to the leader and the organizational world around them. This theory falls within the area of cognitive science leadership, which involves a wide range of approaches aiming to explain how leaders and followers think and process information (Avolio et al., 2009). To test leadership categorization theory, Lord et al. (1984) conducted a series of studies. First, they examined the internal structure, content, and distinctiveness of leadership categories by calculating and correlating three measures of category representativeness: family resemblance scores, cue validity scores, and prototypicality ratings. Second, in order to understand how prototypical leader attributes were stored in memory and how attributes facilitated information processing concerning leadership, accessibility of attributes within the leader category was investigated by measuring how long it took to rate each of leader behaviors on its prototypicality as a leader. The rationale behind the study was that prototypical attributes would be more readily accessible in memory and therefore, play a more important role in forming leadership perceptions. The results showed a negative relationship between item prototypicality and the reaction time, suggesting the stack or differential accessibility model of memory in which attributes were ordered according to prototypicality with most prototypical attributes most accessible. The differences among individuals in attribute accessibility and prototypicality were found, reflecting idiosyncratic

effects of implicit theories (Larson, 1979). Lastly they examined how categorization theory can explain leadership perceptions, behavioral expectations, and attributions about leadership. In their experiment, they manipulated the use of priming (i.e., completing a prototypicality rating task) and the prototypicality of a hypothetical manager's behavior. They concluded that the prototypicality of a leader's behaviors had impact on leadership perceptions, behavioral expectations, and attributions of causality and responsibility.

Development of ILTs

ILTs, like other schemas, are developed through early childhood experiences, past experiences with leaders, and socialization processes. Researchers indicate that early childhood experiences have impacts on shaping individuals' prototypes and expectations of leaders, and parents, particularly, play an important role in the development of ILTs (Hunt, Boal, & Sorenson, 1990; Keller, 2003). More specifically, attachment styles developed in early childhood with parents have an impact on the development of a knowledge structure about leadership and explain individual differences in these mental representations of a leader. This especially reflects on one's ability to adapt existing ILTs when interacting with people who have different, incongruent ILTs (Keller, 2003). The adaptation mechanism implies the dynamic state of ILTs (Medvedeff & Lord, 2007). Social contexts and experiences with new leaders would continue to shape the knowledge structures about leadership (Epitropaki & Martin, 2004; Lord, Brown, Harvey, & Hall, 2001). In cross-cultural research on ILT, researchers found that there were culture-specific and culture-universal content of ILTs (Dorfman, Hanges, & Brodbeck, 2004), and the differences across

cultures were accounted for by the Hofstede's (2001) five cultural dimensions. The findings imply that ILTs are also shaped by the culture to which an individual has been exposed (Den Hartog & Koopman, 2005).

Explicit Measurement of ILTs

Among ILTs studies, one stream of research has examined the content of ILTs and the way individuals differ in implicit beliefs about leadership. These studies focused on identifying the components of leader traits or behaviors in the knowledge structures of the perceivers and investigated the generalizability of the content of ILTs to different groups of people. The research usually involved two processes: 1) the use of qualitative methods (e.g., interview, open-ended questionnaires) to explore what people think of leaders' attributes; and 2) the use of quantitative measures to assess the degree to which these implicit beliefs differ among individuals and whether systematic variations in ILTs exist across follower characteristics (Schyns & Meindl, 2005).

One of the earliest efforts to measure ILTs was Lord et al.'s (1984) 59-item scale. Among other ILTs measures, two scales have been most commonly utilized in research: Offermann et al.'s (1994) 41-item scale and House, et al.'s (1999) Culturally Endorsed Implicit Leadership Theories (CLT).

Lord et al.'s 59-Item Scale

Lord et al. (1984) examined the structure of the leadership categories by asking a group of participants to write leader attributes that they thought applied to each of 11 types of leader (e.g., business leader, teacher leader, athlete leader). Another independent group

provided ratings on how prototypical each attribute identified by the first group was for a leader. The final scale of 59 leader attribute items was determined based on the frequency with which each attribute was mentioned by the first group and a family resemblance score of an attribute for the leader category.

Offermann et al.'s ILTs Scale

Offermann et al.'s (1994) ILTs scale started with a pool of leader characteristics generated by participants without providing a definition of the term "leader." The final instrument consists of 41 traits assessing eight dimensions of ILTs: Sensitivity, Dedication, Charisma, Intelligence, Attractiveness, Strength, Tyranny, and Masculinity. The first six dimensions capture prototypical attributes of a leader; the last two are antiprototypical dimensions (those negatively or not at all associated with leadership). The factor structure was generalized across male and female groups, across student and worker groups, and across three stimulus targets (i.e., leaders, effective leaders, and supervisors; Offermann et al., 1994). Epitropaki and Martin (2004) further validated this instrument on different worker samples and provided a shorter ILTs scale with six dimensions (Sensitivity, Dedication, Dynamism, Intelligence, Tyranny, and Masculinity). Their results supported the stability of ILTs over time and their generalizability across age, organizational tenure, and organizational positions.

Culturally Endorsed Implicit Leadership Theories Scale

As one of the biggest endeavors to study ILTs in a broad context, the GLOBE (Global Leadership and Organizational Behavior Effectiveness; House, et al., 1999) project

developed the Culturally Endorsed Implicit Leadership Theories (CLT) scale to assess cultural similarities and differences in terms of traits and behaviors people expect of their leaders. Their study extended ILTs from the individual level of analysis to the cultural level by aggregating individual ratings and investigated the content of ILTs common among people within a culture. The initial comprehensive list of leader attributes and behaviors were written based on several extant leadership theories. In the item review process, items were screened or revised based on item evaluations and the conceptual adequacy of the back-translation. Later other leadership items were added to capture leadership attributes in cultures other than the Western through content analysis of data from interviews, focus groups, and public media. The result of first-order and second-order factor analyses at the country level (i.e., the use of aggregated responses within a country) showed that the CLT scale consisted of 21 subscales and six global leadership dimensions. Each item includes a behavioral or trait descriptor and a brief definition of the descriptor (Hanges & Dickson, 2004).

In the six global CLT dimensions, the Charismatic/Valued-Based, Team Oriented, Humane Oriented, and Participative leadership dimensions are closely related to prior leadership literature. The Charismatic/Valued-Based dimension refers to leadership attributes related to vision development, the ability to inspire others, the engagement of self-sacrificial behaviors, integrity, decisiveness, and performance orientation. The Team Oriented dimension consists of attributes related to collaborative team orientation, team integration, and administrative and diplomatic skills. The Humane Oriented factor refers to supportive

and considerate leadership; it is associated with the Consideration factor, identified as one of major leadership behaviors in the classic Ohio State and Michigan leadership studies. The Participative dimension includes qualities related to delegation and negotiation. However, the other two CLT dimensions have less association with the typical "Western-oriented" leadership literature: Autonomous and Self-Protective. The Autonomous dimension specifies leadership attributes associated with individualism, independence, and uniqueness. The last dimension, Self-Protective, describes leadership attributes related to face saver and status consciousness, which are identified in the "Eastern" leadership literature (Hanges & Dickson, 2004).

For the purpose of this study, the Offermann et al. (1994) ILTs scale was refined by including some items from the CLT Scale. The refined measure of ILTs ensured the broad inclusion of traits and behaviors people use in distinguishing leaders from non-leaders. In selecting items from the CLT Scale, two criteria were applied. First, subscales that capture leadership attributes in cultures other than the Western were included so that culture-specific leadership attributes identified previously would be tested in this study. This inclusion also allowed for the creation of an explicit ILTs measure that can be used for comparisons of ILTs across cultures at the individual level of analysis; in turn, the finding of cultural similarities in future research will not be an artifact by excluding culture-specific leadership attributes. Of the CLT leadership dimensions, two second-order factors, the Autonomous and Self-Protective, that were not typically associated with Western leadership attributes, were included in this study. Thus, items measuring these factors (i.e., Autonomous, Self-centered,

Status Consciousness, Conflict Inducer, Face Saver, and Procedural as the first-order dimensions) were incorporated into the refined ILTs measure herein. As the second criterion of selecting ILTs items in this study, CLT dimensions that were universally endorsed by all cultures as positive or negative leader attributes and omitted in Offermann et al.'s (1994) ILTs scale were included as well. This allowed for a more complete list of leadership attributes and for the further examination of cultural universality of these items as leader attributes at the individual level of analysis. As indicated in Dorfman et al.'s (2004) study, many items in the Charismatic 1 (Visionary), Charismatic 2 (Inspirational), Integrity, and Team 2 (Team Integrator) dimension were identified as universal facilitators of leadership effectiveness. The Self-centered and Face Saver (as part of the Self-Protective second-order dimension) as well as Malevolent items were rated as universal impediments to leadership effectiveness. Items in these three dimensions were viewed as leader antiprototypes in this study. In brief, CLT items in the 11 first-order dimensions were examined herein: Autonomous, Self-centered, Status Consciousness, Conflict Inducer, Face Saver, Procedural, Charismatic 1 (Visionary), Charismatic 2 (Inspirational), Integrity, Team 2 (Team Integrator), and Malevolent.

Implicit Measurement of ILTs

Although asking participants to report their prototypicality ratings on leader attributes is a common practice in assessing ILTs, these explicit ILTs measures are very likely to be influenced by self-presentation biases and may not accurately assess this implicit cognition (Fazio & Olson, 2003). Implicit and explicit cognition are distinct and involve different

information processing (Fazio & Olson, 2003; Greenwald & Banaji, 1995). Implicit cognition involves effortless, automatic processes that reflect stable associative representations established over time (Greenwald & Banaji, 1995); explicit cognition is elicited by controlled, propositional processes that reflect more recently acquired information (Wilson, Lindsey, & Schooler, 2000). As a result, implicit and explicit measures may not assess the same construct but rather some association among them might be expected (Boldero, Rawlings, & Haslam, 2007; Wilson et al., 2000).

From a methodological perspective, the need for implicit measures to fully understand ILTs has been recognized (Medvedeff & Lord, 2007). First, by definition ILTs are implicit cognition concerning leaders and leadership, and they are being processed in the spontaneous level of information processing. As a result, instruments involving this level of cognitive processing are required. Second, implicit measures in general are relatively impervious to self-report biases that are typically associated with explicit measures, such as social desirability (Fazio & Olson, 2003). Shondrick et al. (2010) criticized use of the conventional questionnaire method in measuring leader behavior and leadership perception when investigating the impact of ILTs. However, they failed to raise potential problems in using typical questionnaire measures for the assessment of ILTs. Lastly, although the relationship between explicit and implicit measures was considered small or not associated in some areas (e.g., personality, Mierke & Klauer, 2003; Schmukle & Egloff, 2005), the utility of explicit and implicit measures of ILTs has not as yet been thoroughly examined and compared because of the lack of implicit measures. To fill in the gap in ILTs research, this

study developed implicit measures of ILTs and examined their relations to explicit ratings, leadership perceptions, and rater characteristics. To provide the foundation for developing implicit ILTs measures, Lord et al.'s (1984) work using a latency-based approach to ILTs and the research on implicit cognition (e.g., stereotype and personality) were reviewed.

Lord et al.'s (1984) Latency-Based Study

As an early effort to examine the structure of implicit theories of leadership, Lord et al. (1984) incorporated the information processing perspective to the leadership research by examining accessibility of the leadership category in memory. They measured response latency of rating 25 two-word behavioral statements which varied in prototypicality (i.e., prototypical, neutral, and antiprototypical). Each behavioral statement was presented at a time over a CRT; subjects were asked to rate each item quickly but carefully by judging how well each item fit his or her image of a leader and then pressing one of five keys (representing "not at all" and "extremely well" at the extremes) on the CRT keyboard. They found the negative relationship between item prototypicality and reaction time and demonstrated individual differences in accessibility and prototypicality of leadership characteristics. However, the authors suggested the need for further methodological refinement of their latency-based approach to ILTs. Since then, no other latency-based studies were found to address this call for further research. Additionally, a major methodological concern with their study was the use of behavioral statements only since the most recent ILTs research (e.g., Offermann et al., 1994; Epitropaki & Martin, 2004, 2005) has a primary focus on personality traits. Their study neither provided an indication of how

strongly these behavior-based ILTs related to leaders and non-leaders, which becomes available in more recent techniques for measuring implicit social cognition, such as the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998).

Implicit Association Test

In studying implicit social cognition (e.g., implicit attitudes, stereotypes, self-esteem), Greenwald et al. (1998) introduced the IAT to assess relative associations between target concepts. The IAT is designed to measure individuals' tendencies to hold implicit or automatic beliefs about various broad categories. An automatic or unconscious form of social cognition can be presented as implicit associations among concepts, which are a relatively new concept in the social and behavioral sciences (Landy, 2008). The IAT measures strength of associations among concepts by asking respondents to complete a sorting task of stimulus exemplars from four concepts with two response options. Four categories represent two contrasting pairs: contrasting target concepts (e.g., men-women) and contrasting attribute category (e.g., good-bad). Sorting materials consist of labels of the four categories and stimulus items that are exemplars for those categories. The task requires rapid and accurate sorting of exemplars of four categories into their nominal categories within a set of response blocks (Nosek, Greenwald, & Banaji, 2007). A measure of implicit association among concepts, referred to as the IAT effect, is computed based on response latency for sorting two associative pairs (e.g., men with good, women with bad) and for sorting two other associative pairs (e.g., men with bad, women with good). It is a relative measure of implicit associations among concepts (e.g., relative preference for men compared to women). The rationale behind

the IAT measure is that more time is required in sorting exemplars when the two concepts that share a response are weakly associated than when they are strongly associated (Nosek et al., 2007).

The Go/No-Go Association Task

As a variant of the IAT, the Go/No-Go Association Task (GNAT; Nosek & Banaji, 2001) has been used in assessing implicit personality. Departure from the IAT, the GNAT is an absolute association measure that assesses associations independent of other target categories. It allows for assessing automatic social cognition toward a single target concept and measures the strength of association between a target concept (e.g., extraversion) and two poles of an evaluative dimension (e.g., like me and not-like me). In the design of the GNAT, no complementary or contrasting objects are required in the GNAT. A series of terms related to the target category (e.g., extraversion) and evaluative dimension (e.g., 'self' roles and 'not self' roles) are presented for brief durations, and subjects are asked to distinguish target terms from distracters rapidly and accurately. For example, in Boldero et al.'s (2007) implicit personality study the GNAT had two trial blocks: one with the target terms of extraversion and 'self' and the other with the target terms of extraversion and 'not self.' A response is required when a term belongs to either a target or evaluative category; no response is required if the term belongs to neither category (i.e. a distracter item). The logic behind the task is based on the signal detection assumption that greater sensitivity to the presence of a stimulus (i.e., a stronger association between a target concept and an evaluative concept) facilitates discrimination (Nosek & Banaji, 2001). Strength of associations between

the concept and evaluative terms, a measure of automatic cognition, is reflected on differences in sensitivity (*d'*) between pairing conditions (e.g., extraversion + like-me versus extraversion + not-like-me), indicating the extent to which items in the target category and evaluative attribute can be distinguished from distracter terms that do not belong to those concepts. The sensitivity (*d'*) index is computed using standardized probabilities of correct and incorrect responses to target concept terms. The GNAT procedures primarily use response accuracy to compute strength of association, but response latency also can be used as an index of strength of association (Nosek & Banaji, 2001).

The GNAT has been accepted as an effective tool for assessing implicit attitudes (Bassett & Dabbs, 2005; Nosek & Banaji, 2001) and implicit beliefs (Loughnan & Haslam, 2007). In particular, it is suitable to measure implicit cognition whose poles differ in desirability (Boldero et al., 2007; Greenwald & Farnham, 2000) because its absolute measure of association strength is less influenced by term valence, compared to the relative measure in the IAT. Studies have shown that target term valence influenced strength of associations and that attenuations introduced by contrasting term valence were reduced in absolute measures of association strength (e.g., Karpinski, 2004; Rudman, Greenwald, & McGhee, 2001).

Research on implicit personality is an area of study whose findings may suffer from differential desirability of the poles of a trait category. For instance, Boldero et al. (2007) investigated the characteristics of implicit Big-Five personality measures using the GNAT and examined the convergent validity of the implicit and explicit personality measures. Their

results showed that the GNAT indices were reliable and evidenced the correspondence between two measures when controlling for systematic variance in the GNAT indices. The reaction times were predictable from the GNAT indices of implicit extraversion and neuroticism. They suggested that the GNAT was a promising method for assessing implicit personality. Similar to research on implicit personality, the GNAT would be more suitable than the IAT in assessing strength of associations concerning leader traits because the results may be sensitive to differential desirability of the poles of a trait category.

Relationship between the Explicit ILTs Measure and the Implicit ILTs Measures

The relationship between explicit and implicit measures can be strong in some cases (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005) but weak or none in others (Mierke & Klauer, 2003; Schmukle & Egloff, 2005). A meta-analysis of IAT and explicit measures reported an average correlation of .24 in an investigation of 57 different content domains (Hofmann et al., 2005). In the GNAT study, Boldero et al. (2007) found evidence for correspondence of the explicit personality measure with the GNAT of implicit personality. However, Boucher, Peng, Shi, and Wang (2009) reported no relationship between explicit and implicit (e.g., GNAT) measures of self-esteem for Euro-Americans (average r = -.06) but a weak relationship for Chinese (average r = .14). As Fazio and Olson (2003) argued, the variability regarding the correspondence between explicit and implicit measures indicated that answering the "when" question (e.g., for what construct, under what conditions, for what kind of people) was more important than the question "whether a relation exists." Although the current state of research in this area did not lend it to a strong

prediction about the relationship between explicit and implicit measures, examining the correspondence between explicit and implicit ILTs measures advances the understanding of the ILTs construct.

ILTs and Leadership Perceptions

Besides the refinement of an explicit measure and the development of implicit measures for ILTs, this study examined the relationships of explicit and implicit ILTs measures with various leadership perceptions. ILTs were first studied as a source of bias in leadership measurement (e.g., Bass & Avolio, 1989; Eden & Leviatan, 1975), and their effects on people's leadership perceptions and their utility as an explanatory framework for organizational leadership were recognized later and have increasingly received interest in research (e.g., Epitropaki & Martin, 2005; Lord et al., 1984). Early work on ILTs provided support for the effect of raters' implicit beliefs about leaders on behavioral ratings of leadership. Most studies (e.g., Rush, Thomas, & Lord, 1977) demonstrated the influence of ILTs on leadership measurement by evidencing that the factor structure of the leader behavior measures was comparable under the limited information condition where actual leader behaviors were not able to be observed and under the normal social condition. However, the relationship between ILTs ratings and leadership perceptions has not been well studied, with some exceptions. Rush et al.'s (1977) experimental study demonstrated that ILTs affected the mean ratings on the Consideration and Initiating Structure dimensions of leader behavior. They further concluded that the impact of ILTs on leadership ratings was not only understandable but also seemed unavoidable and therefore suggested researchers to

assess the extent to which these "nonbehavioral" effects exist in real-world organizations. Bass and Avolio (1989) found raters' prototypicality ratings of leader attributes were related to ratings on transformational and transactional leadership behavior, leader effectiveness, and leadership satisfaction. Ratings on transformational leadership behavior were more highly associated with prototypicality ratings than were transactional leadership ratings, suggesting that people's image of a leader may have greater impact on measures of transformational leadership than on those of transactional leadership. However, in their study the ILTs scale contained only behavior-based attributes that were found to be most prototypical in distinguishing leaders from non-leaders in Lord et al.'s (1984) study. Neither trait-based ILTs attributes nor antiprototypical attributes were included. In summary, these studies suggested that leadership behavioral questionnaires reflect both the behavior of the ratee and the perceptual-memory processing of the rater. Indeed, research has evidenced that ratings were affected more by rater than by ratee factors, even when raters were highly familiar with ratees (Dornbush, Hastorf, Richardson, Muzzy, & Vreeland, 1965; Jago & Vroom, 1975; Shondrick et al., 2010).

As Meindl (1995) suggested, the examination of correlations between individuals' ILTs and their leadership ratings provides a means to understanding the thought systems and ideologies regarding leadership perceivers hold. To implement this idea, this study employed subordinate ratings on leader behaviors as well as leader influence as measures of leadership perceptions. Specifically, besides the Consideration and Initiating Structure behaviors the present study also related ILTs to ratings of charismatic leadership behaviors and perceived

leader influence, in accordance to the argument that leader behaviors other than the Consideration and Initiating Structure scales needs to be used in exploring the biasing effect of ILTs in leadership measurement (Bass & Avolio, 1989) and the hypothesis that the potential effect of ILTs on measures other than leader behavior is possible (Rush et al., 1977).

In addition, differential validity of the ILTs construct was assessed. The relationship of leadership perceptions were compared between ILTs and a related construct, ILT congruence. The ILT congruence refers to the perceived fit between one's ILT and his/her supervisor's characteristics. According to Lord et al.'s (1984) leadership categorization theory, a different relation of leadership ratings is expected with one's implicit beliefs about leadership and one's perceived fit between his/her ILT and an actual leader. Specifically, according to this theory categorization is a prototype-matching process in which the congruence between a target's behaviors or characteristics and a prototype that defines a category for perceivers is spontaneously evaluated. When someone is judged to fit one's image of a leader, some unobserved but prototypical traits are associated with this newly labeled leader, and this would result in more favorable behavioral ratings (Shondrick et al., 2010). Thus, leadership ratings are expected to be highly associated with the perceived leader fit than with one's ILT. In short, this study examined the influence of ILTs on perceptions of leader behaviors and leader influence and further investigated whether ILTs themselves or the perceived fit of an actual leader into one's ILT was related to leadership perceptions.

ILTs and Individual Characteristics

Individual differences in ILTs ratings in relation to raters' characteristics have been evidenced. For example, Epitropaki and Martin (2004) found that males and females differed in the Sensitivity, Tyranny, and the overall antiprototypical dimension. In comparison to males, females tended to consider leaders to be more understanding, sincere, and honest and less domineering, pushy, and manipulative. Besides the empirical evidence, the developmental process of ILTs suggests that there would be relationships between one's ILT and his/her characteristics. Individuals with different characteristics (e.g., age and tenure) would be attracted to certain social events, be involved in certain interpersonal interaction, and/or have certain experiences with leaders, of which all contribute to the formation of one's leadership prototypes (Hunt et al., 1990; Keller, 2003). Thus, the relationships between ILTs and individual characteristics could be expected. Specifically, this study examined the degree to which ILTs, assessed using the explicit as well as implicit measures, were related to age, gender, and work history.

The Variable-Oriented versus Person-Oriented Approach to ILTs

One criticism of extant ILT studies was that researchers continued to place too much emphasis on individual components of these implicit beliefs but less focus on a holistic view of the parts (Koommoo-Welch, 2009). This criticism introduced the idea of adopting the variable-oriented versus person-oriented (or pattern-oriented) approach in studying ILTs. In the variable-oriented approach, studies focus on identifying specific leader traits that constitute ILTs and view them as distinct variables that influence other outcome variables

(e.g., ratings of leader performance). Although the variable-oriented approach has merit in examining the content of ILTs and their impacts on the leadership dynamic system, the person-oriented approach has been suggested for better understanding the interactions among ILT variables and, more importantly, for examining their influences on leadership processes (Koommoo-Welch, 2009). The person-oriented approach highlights that individuals develop as holistic, unique entities and recognizes that all aspects of beliefs a person has concerning leadership jointly contribute to the formation of leadership perceptions and expectations. At the methodological level, the person-oriented approach adopts the person rather than the variable as the unit of analysis and is used to identify unique patterns of variables. Then people are classified into categories according to their standing on variables relevant to the phenomenon under investigation. Group membership becomes the primary variable, rather than ILT variables (Bergman & Trost, 2006; Magnusson & Torestad, 1993).

Although the merit of the person-oriented approach has been identified for leadership research in general, there was no ILT research adopting this approach, with one exception. Koommoo-Welch (2008) examined whether the congruence between followers' ILTs and an actual leader had influences on the ratings of charisma and performance using the Offermann et al. (1994) scale. In her study, 11 distinct cluster profiles of ILTs were identified among working adults, and cluster profiles were different on all eight ILT dimensions. The results indicated that the perceived congruence between employees' ILTs and their actual leader influenced the ratings of charisma. Also, the findings suggested that ILTs were generalized across age, gender, ethnicity, and organizational tenure. Her study provided support for the

person-oriented approach to ILTs. As Bergman, Magnusson, and El-Khouri (2003) argued, the person-oriented and variable-oriented approaches are complementary, and the combined information from the two types of analysis helps understand the construct being studied. Thus, this study adopted both the variable-oriented and person-oriented approach in studying ILTs, assessed by explicit as well implicit measures.

Purpose and Research Questions

The purpose of the study was to develop instruments assessing implicit theories of leadership. Specifically, this study involved efforts to refine Offermann et al.'s (1994) explicit measure and to develop implicit measures using the GNAT technique. The relationships of ILTs with subordinates' perceptions of their leaders and their characteristics were explored in both the explicit and implicit ILTs measures. The correspondence between the explicit and implicit ILTs measures was also examined. The following is a summary of six research questions in this study.

Research Question 1: To what extent are explicit ILTs measures related to leadership perceptions when using

a) a variable-oriented approach and

b) a person-oriented approach?

Research Question 2: To what extent are implicit ILTs measures related to leadership perceptions when using

a) a variable-oriented approach and

b) a person-oriented approach?

Research Question 3: To what extent are ILTs, assessed by explicit and implicit measures, related to follower age when using

a) a variable-oriented approach and

b) a person-oriented approach?

Research Question 4: To what extent are ILTs, assessed by explicit and implicit measures, related to follower gender when using

a) a variable-oriented approach and

b) a person-oriented approach?

Research Question 5: To what extent are ILTs, assessed by explicit and implicit measures, related to follower work experience (i.e., full-time employment history and length of current employment) when using

a) a variable-oriented approach and

b) a person-oriented approach?

Research Question 6: To what extent are corresponding explicit and implicit ILTs measures correlated to each other when using a variable-oriented approach?

Method

Participants

Participants were recruited throughout the United States from two sources: personal contacts (i.e., email, social media) and the Mechanical Turk, an online labor market (see

Paolacci, Chandler, & Ipeirotis, 2010 for a review of Mechanical Turk for participant recruitment). As incentive for participation, a raffle for an iPod Touch and $30 gift cards was held for individuals recruited from personal contacts. Mechanical Turk participants were paid $0.50 for completion of the ILTs measures, and for individuals being currently employed an additional $0.40 was awarded for completion of the measures of leadership perception.

An initial sample contained 642 participants, including 581 participants who completed the explicit measure, 417 participants who completed at least one of the five GNATs, 376 participants who completed all five GNATs, and 214 participants who completed at least one of the three measures of leadership perception. The sample size for each of the following analyses varied due to the availability of data in different parts of the study survey and the scoring procedures of the GNAT (see the Results section for the details). Since some measures of the survey contained a relatively large number of missing data points and some participants were excluded from certain analyses based on their responses to the GNATs, missing values may not be construed as random events. Thus, no imputations for missing values were conducted. Of participants who provided demographic information (57% of the initial sample), 141 were male and 226 were female, with a mean age of 34.47 (SD = 11.83), average full-time work experience of 9.66 years (SD = 10.71; with one missing value), and average current employment of 3.71 years (SD = 4.01; with 143 missing values).

Measures and Procedure

The explicit ILTs measure and the GNATs were completed and followed by the questionnaires of leadership perceptions and demographic information. The order of explicit measures and the GNATs was randomly assigned given that there was no evidence for a preferred order and that no order effect was found (Hofmann et al., 2005; Nosek et al., 2007). Only participants who reported as being full-time or part-time employed were allowed to answer the measures of leadership perception.

Explicit ILTs measure. An ILTs measure in the present study consisted of 41 items from Offermann et al.'s (1994) scale and 40 items from the 11 subscales of House, et al.'s (1999) CLT scale. Due to two redundant items "enthusiastic" and "sincere," the final pool of 79 leader attributes was completed by participants (See Appendix A for items). Participants were asked to rate "how characteristic is each of the traits to your image of a leader" on a 5-point scale, ranging from *not at all characteristic* to *extremely characteristic*. Neither definition of each attribute nor of a leader was given.

Implicit ILTs measures. The Inquisit 3.0 program (Millisecond Software, 2005) was used for the GNATs. Similar to Boldero et al.'s (2007) procedure, in the GNAT participants were first asked to provide four leader roles and non-leader roles. To ensure the appropriateness of GNAT materials, only leader traits in the Offermann et al. (1994) scale were included because this scale has been widely examined in studies at the individual level of analysis. In addition, only ILTs subscales with an acceptable level of reliability (greater than .80) and with at least four items were selected: three prototypical and one

antiprototypical ILTs subscales -- Sensitivity (α = .93, eight items), Dedication (α = .81, four items), Intelligence (α = .85, six items), and Tyranny (α = .91, 10 items). One exception was the inclusion of Charisma (α = .78, five items) because leader charisma has been identified as an important component in new leadership theories (Conger et al., 2000; Judge & Piccolo, 2004). For a subscale with more than four items, four trait exemplars with greater factor loadings in the Offermann et al. (1994) study were selected. Materials used in the GNATs are presented in Appendix B. Five GNATs were developed, and they were presented in a randomized block design, with each GNAT consisting of three practice blocks and two critical blocks. Practice blocks used to acquaint participants with the task were presented first. In these blocks participants learned to distinguish among terms in two role categories (i.e., the leader-like category and the non-leader-like category), and among terms in the target attribute category (e.g., sensitive in the Sensitivity dimension) and the distracters (e.g., strong). Each practice block consisted of 10 trials (½ target terms, ½ distracters) and used a 1000-millisecond response deadline.

In one of the two critical blocks, the target attribute category (e.g., Sensitivity) paired with the "leader-like" evaluative category whereas in the other the pairing condition involved the target attribute category and the "non-leader-like" category. Each block consisted of 12 practice trails and 48 critical trials, half of which present targets and half distracters. At the beginning of each block task instructions were given, and then the attribute terms associated with one of the five ILTs dimensions, and the four participant-specified roles for the categories of "leader-like" and "non-leader-like" were presented (see Appendix C). Each

critical block consisted of an attribute category label, an evaluative category label, four target terms, four no-go terms (distracters), and four participant-specified roles for "leader-like" and "non-leader-like." Stimuli were presented in random orders, with the restriction that terms representing the same category did not appear more than two times consecutively. Each trial involved the presentation of one term from one of the four categories. The target category labels (e.g., 'leader', 'dedication') were also presented in the upper left and right corners of the screen (see Appendix C for an example). Distracter items were seven traits associated with the other three Offermann et al.'s (1994) ILTs dimensions (i.e., Attractiveness, Masculinity, and Strength). Participants were instructed to either (1) press the space bar as quickly as possible when terms belong to either of the labeled categories appearing on the screen (go) or (2) do nothing for terms that belong to neither categories (no-go). Each term remained on the screen until either the participant provided a response or a preprogrammed amount of time was up, whichever came first. The response deadline for trials was 700 milliseconds. The selection of the time window was based on the result of a pilot study where a sample of 42 undergraduate students showed that this particular window was not so fast as to make the task impossible, but not so slow as to create a ceiling effect on performance. The inter-stimulus interval between trails was 250 milliseconds for correct responses and 450 milliseconds for incorrect responses (Nosek & Banaji, 2001). During inter-stimulus intervals, performance feedback was given by a green 'O' for correct responses and a red 'X' for incorrect responses. Response latencies and responses were recorded to compute indices for strength of associations among concepts.

Two types of strength of association index were calculated. Four indices were generated for each GNAT: the associations of the target ILTs dimension with "leader-like" and "non-leader-like," using sensitivity (*d'*); a difference between the two *d'* measures; and a reaction time index (*D*) based on Greenwald, Nosek, and Banaji's (2003) study. The sensitivity (*d'*) index, referred to as the accuracy index in this study, for each pairing condition was computed using standardized probabilities of correct (i.e., hits in signal detection theory) and incorrect (i.e., false alarms in signal detection theory) responses for target concepts (Nosek & Banaji, 2001). The reaction time index (*D*), referred to as the latency index herein, was a latency difference of correct responses between the "leader-like" and "non-leader-like" block divided by a pooled standard deviation. See the Results section for the details in scoring. Cronbach's α for each of these indices was computed based on Devos and Ma's (2008) procedure. Each block of trials was divided into four parcels, each with 12 trials, and the indices were computed for the four parcels and were used as items for calculating Cronbach's α.

Perceived leader fit. A single item (i.e., "My immediate supervisor fits my image of a leader") was used to assess the perceived congruence between one's image of leader and his/her immediate supervisor.

Leader Behavior Description Questionnaire (LBDQ). In measuring leadership perceptions, the LBDQ (Halpin, 1957) was used to rate how frequently an immediate supervisor exhibited Consideration (15 items; associated with one's expression of appreciation and support) and Initiating Structure (15 items; associated with role assignment

and work organization) behaviors, on a 5-point Likert scale ranging from *never* to *always*. Confirmatory factor analysis indicated that a hypothesized two-factor model did not fit the data (χ^2 = 1280.50, *df* = 404, $p < .01$, CFI = .78, TLI = .77, RMSEA = .10, SRMR = .12; Table 1). Therefore, exploratory factor analysis with the principal-axis method and varimax rotation was conducted to determine dimensional scores. A refined two-factor solution (Table 2) was superior to a three- and four-factor solution. Items with factor loading below .40 and cross-loaders were excluded from scoring for the refined Consideration and Initiating Structure subscales. See Appendix D for items. Descriptive statistics and reliabilities for both subscales and the overall scale are shown in Table 3.

Conger-Kanungo Charisma Scale. With respect to perceptions of charismatic leadership, the Conger-Kanungo Scale of Charismatic Leadership (CKS; Conger & Kanungo, 1998) was used to assess five behavioral dimensions: Strategic Vision and Articulation, Sensitivity to the Environment, Sensitivity to Member Needs, Personal Risk, and Unconventional Behavior. Participants were asked to indicate the degree to which each statement describes their immediate supervisor on a 5-point Likert scale ranging from *not at all characteristic* to *extremely characteristic*. Confirmatory factor analysis indicated that the hypothesized five-factor model fit the data (χ^2 = 404.14, *df* = 160, $p < .01$, CFI = .93, TLI = .92, RMSEA = .09, SRMR = .05; Table 1). See Appendix D for items. Descriptive statistics and reliabilities for all the subscales are shown in Table 3.

Leader influence on work performance. Perceived leader influence on work performance was assessed by three items developed for the current study, on a 5-point Likert

scale ranging from extremely disagree to extremely agree. Exploratory factor analysis with the principal-axis method evidenced a single-factor fitting model. The variance explained by the single factor was 72.84%. See Appendix D for items. Descriptive statistics and scale reliability are shown in Table 3.

Cluster Analysis for the People-Oriented Approach to ILTs

To examine individuals' implicit beliefs about leadership from a holistic perspective, cluster analysis was used to identify different ILT profiles. Cluster analysis is a person-oriented technique to categorize individuals into homogenous groups based on the pattern of their responses to a set of variables (Aldenderfer & Blashfield, 1984). In the present study, the squared Euclidean distance (SED) was used as the similarity index in assessing the degree of similarity between response patterns. The selection of SED was based on its sensitivity to the three aspects of pattern similarity: shape (the pattern of high and low scale scores in a profile), level (the overall elevation of the profile), and scatter (the degree of variability of subscale scores around the profile average; Cronbach & Gleser, 1953). Prior to cluster analysis, data were examined for missing values and outliers. Cases are considered outliers when a SED between them and their nearest sibling is more than 0.5 (the default value for the RESIDUE function), suggesting that they do not have an initial sibling. Next, clustering variables were standardized for use in two procedures of cluster analysis: hierarchical agglomeration with Ward's (1963) method and *k*-means relocation algorithm (Aldenderfer & Blashfield, 1984).

Table 1. *Confirmatory Factor Analyses Fit Statistics for Models of Leadership Perception and ILTs Measures*

Model	*n*	Fit Index							Fit Status
		$\chi 2$	*df*	$\chi 2$/df	CFI	TLI	RMSEA	SRMR	
Leader Behavior Description Questionnaire (Halpin, 1957): 2-factor	214	1280.50**	404	3.17	0.78	0.77	.10	.12	Poor fit
Charismatic Leadership (Conger & Kanungo, 1997: 5-factor	211	404.14**	160	2.53	0.93	0.92	.09	.05	Acceptable fit
ILTs traits related to GNAT: 5-factor	581	606.85**	160	3.79	0.93	0.92	.07	.05	Acceptable fit

Note. CFI = Comparative fit index; TLI = Tucker-Lewis Index; RMSEA = Root mean square error of approximation; SRMR = Standardized root mean square residual. Decision criteria used in determination of model fit are $\chi 2$/df between 1.0 and 5.0 (Schumacker & Lomax, 2010), RMSEA < .10 (Meyer, Gamst, & Guarino, 2006), SRMR < .07 (Yu, 2002), CFI > .90 (Hu & Bentler, 1999), and TLI > .90 (Bentler & Bonett, 1980).

**$p < 0.01$.

Table 2. *Two-Factor Solution of the Leader Behavior Description Questionnaire (n=214)*

Item	Consideration	Initiating Structure
LBC_1	.31	.14
LBC_2	**.60**	.24
LBC_3	**.66**	.35
LBC_4	**.73**	.25
LBC_5[a]	**.46**	-.05
LBC_6	**.72**	.17
LBC_7[a]	**.61**	-.10
LBC_8[a]	**.57**	-.22
LBC_9	**.77**	.23
LBC_10	**.77**	.19
LBC_11	**.77**	.25
LBC_12	**.78**	.12
LBC_13	**.82**	.17
LBC_14	**.76**	.30
LBC_15	**.68**	.19
LBI_2	**.67**	.26
LBI_1	**.51**	**.48**
LBI_3	**-.40**	**.53**
LBI_4	-.34	**.47**
LBI_5	-.24	**.54**
LBI_6	.33	**.57**
LBI_7	.19	**.62**
LBI_8	.34	**.74**
LBI_9	.19	**.72**
LBI_10	.24	**.59**

Table 2. *Continued*

Item	Consideration	Initiating Structure
LBI_11	**.52**	**.43**
LBI_12	.18	**.64**
LBI_13	**.56**	**.58**
LBI_14	**.47**	**.67**
LBI_15	**.60**	**.59**
Eigenvalue	9.53	5.61
Variance explained (%)	31.76	18.70

Note. LBC = the Consideration scale in the Leader Behavior Description Questionnaire. LBI = the Initiating Structure scale in the Leader Behavior Description Questionnaire.Values in bold indicate factor loadings ≥ .40. The total variance explained by the three factors is 50.47%. Cross-loaders were excluded from scoring for the refined Consideration and Initiating Structure subscales. [a]Items were reverse scored.

Table 3. *Descriptive Statistics, Coefficient Alphas, and the Number of Items for Follower Characteristics and Leadership Perception Scales and Their Inter-Correlations*

Sub-scales	# of item	*M*	*SD*	1	2	3	4	5	6	7	8
1. Age[a]	-	34.47	11.83	-							
2. Gender[a]	-	-	-	-.10	-						
3. Full-time work history[b]	-	115.86	128.46	.75**	-.04	-					
4. Length of current employment[c]	-	44.50	48.15	.43**	-.01	.46**	-				
5. Perceived leader fit[d]	1	3.19	1.24	.03	-.11	.01	-.02	-			
6. Overall LBDQ rating[e]	23	3.46	0.66	.00	-.14*	.02	-.02	.79**	(.92)		
7. Consideration[e]	15	3.48	0.81	.01	-.14*	.00	.00	.78**	.93**	(.94)	
8. Initiating structure[e]	8	3.42	0.73	-.02	-.06	.04	-.04	.43**	.66**	.35**	(.83)

Table 3. *Continued*

Sub-scales	# of item	*M*	*SD*	1	2	3	4	5	6	7	8
9. Charismatic leadership[d]	20	2.97	0.90	-.01	-.10	.00	-.03	.82**	.81**	.81**	.43**
10. SVA[d]	7	3.03	1.10	-.01	-.10	.02	-.05	.80**	.76**	.77**	.39**
11. SE[d]	4	3.27	0.98	-.01	-.13	.02	-.01	.75**	.82**	.79**	.50**
12. SMN[d]	3	3.33	1.15	.05	-.18**	.05	.02	.78**	.84**	.87**	.38**
13. PR[d]	3	2.50	1.03	-.05	.01	-.08	-.04	.57**	.48**	.48**	.25**
14. UB[d]	3	2.57	1.05	-.02	.01	-.04	-.04	.45**	.39**	.37**	.24**
15. Leader influence[d]	3	3.66	1.00	.01	-.17*	-.03	-.07	.66**	.65**	.62**	.39**

Table 3. *Continued*

Sub-scales	9	10	11	12	13	14	15
9. Charismatic leadership[d]	(.95)						
10. SVA[d]	.95**	(.94)					
11. SE[d]	.84**	.74**	(.87)				
12. SMN[d]	.85**	.76**	.83**	(.90)			
13. PR[d]	.75**	.61**	.47**	.54**	(.80)		
14. UB[d]	.72**	.65**	.41**	.40**	.63**	(.79)	
15. Leader influence[d]	.60**	.56**	.59**	.63**	.39**	.27**	(.89)

Note. [a]$n = 367$. [b]$n = 366$. [c]$n = 224$. [d]$n = 224$. [e]$n = 214$. [f]$n = 211$. Internal consistency estimates are in the diagonal. Full-time work history and length of current employment were in months. SVA = Strategic Vision and Articulation; SE = Sensitivity to the Environment; SMN = Sensitivity to Member Needs; PR = Personal Risk; UB = Unconventional Behavior. Three items to assess perceived leader influence were developed for the current study: "My group's performance can be partially attributed to my immediate supervisor's behavior and effort," "My immediate supervisor has influences on my group's success," and "My immediate supervisor has influences on my individual performance."

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

Hierarchical agglomeration with Ward's (1963) method was conducted to determine the optimal number of clusters in the data. Ward's (1963) method was chosen for this task because it tends to create relatively homogenous clusters with relatively equal sample sizes. Initially each individual was treated as a cluster, and based on the pairwise similarity indices individuals were iteratively merged to clusters that produce the smallest increase in the error sum of squares (ESS) within clusters (Aldenderfer & Blashfield, 1984). ESS is a measure of the amount of error associated with assigning individuals to clusters and is an indication of the adequacy of the cluster solution. An ESS plot shows the increase in error as successive clusters are joined and is used to guide the selection of the optimal number of clusters. The optimal number of clusters to be retained is based on Bergman et al.'s (2003) recommendations: (1) the cluster solution selected is theoretically meaningful; (2) a sudden drop in ESS increment may indicate a solution with too few clusters; (3) the total ESS explained by the chosen solution should preferably exceed two-thirds and minimally 50 percent; and (4) a lower homogeneity coefficient, indicating that members within a cluster are more similar, is required for each cluster, and its value below 1.00 is preferred (Bernhard-Oettel, Isaksson, & Bellaagh, 2008). The homogeneity coefficient represents the average SED among all possible pairwise comparisons of members in a particular cluster. Moreover, the number of clusters normally cannot be expected to be fewer than 5 or more than 15 for practical considerations (Bergman et al., 2003). The centroid of the cluster (i.e., the means in a cluster) and the associated variances are also inspected. It is required that the variances of the incorporated variables be small and not increase much as a result of a pervious merge.

The result of a merge of two clusters with moderate homogeneity should not be a cluster with a much higher homogeneity coefficient than the parent clusters (Bergman et al., 2003).

As a second step, the *k*-means relocation algorithm, an iterative partitioning method, was employed to improve homogeneity for the chosen cluster solution and to stabilize the assignment of cases to the identified *k* clusters. This method started with an initial partition into *k* clusters and then moved each case to the cluster with the closest centroid until no more reassignments were indicated (Aldenderfer & Blashfield, 1984). In this process the final centroid values that accurately represent the values in the clusters and the final homogeneity coefficient for each cluster were computed.

Results

All analyses were performed using the Statistical Package for the Social Science (SPSS) version 17.0 (SPSS Inc, 2008) and Mplus version 5.21 (Muthén & Muthén, 2007) except cluster analyses conducted using the statistical package SLEIPNER 2.1 (Bergman & El-Khouri, 2002).

Factor Structure of the Explicit Measure

To assess ILTs ratings, in the current study a refined explicit measure was built on the Offermann et al. (1994) scale, with the addition of the CLT (House et al., 1999) items. The combined scale was factor analyzed with the principal-axis method and varimax rotation. Solutions of three to five factors were examined. Eigenvalues for the first six unrotated factors were 16.61, 15.57, 4.36, 3.14, 1.92, and 1.82, respectively. Based on criteria for retaining factors, including the Kaiser rule, the “elbow” of the scree plot, the interpretability

of the factors, and high communalities and loadings (Thompson, 2004), a four-factor solution was found to be superior to the three- and five- factor solutions. A scree plot is presented in Figure 1. The solution met the Kaiser rule and provided the clearest interpretation of the factors. The majority of items had high communalities, and all had high loadings on at least one factor in this solution. The common variance explained by the four factors was 47.72%. Table 4 contains the results of the four-factor solution and descriptive statistics for all items. Items that did not load on any factor (e.g., factor loading < .40) or loaded on more than one factor (i.e., cross-loaders) were excluded from factor scoring. The final measure contained 69 items.

Factor 1 was encompassed by the so-called antiprototypical dimensions, including Tyranny, Masculinity, Self-centered, Conflict Inducer, Face Saver, and Malevolent. These items were rated as being least characteristic of leaders. This factor was labeled as Malevolence, consistent with the previous research (e.g., House et al., 1999).

Factor 2 consisted of items primarily from four CLT sub-scales, Charisma 1: Visionary, Charismatic 2: Inspirational, Team 2: Team integrator, and Integrity, and four Offermann et al.'s sub-scales: Strength, Dedication, Intelligence, and Charisma. All the items seemed to describe leader attributes that influenced followers' emotions and motivation and work morale. This factor was named as Charisma.

Table 4. *Descriptive Statistics and Four-Factor Solution of the 79-Item Explicit ILTs Measure (n=581)*

Scale	Item	*Mean*	*SD*	Malevolence	Charisma	Social Awareness	Sensitivity	h^2
T	Domineering[a]	2.05	1.23	**.67**	.01	.25	-.19	.56
T	Manipulative[a]	1.75	1.05	**.75**	.00	.11	-.21	.61
T	Loud[a]	1.82	1.08	**.70**	.01	.17	-.18	.56
T	Demanding[a]	2.22	1.21	**.68**	.11	.05	-.22	.53
T	Pushy[a]	1.62	1.00	**.75**	-.03	.03	-.17	.60
T	Conceited[a]	1.51	0.92	**.78**	-.12	.12	-.15	.66
T	Power-hungry[a]	1.89	1.16	**.71**	.05	.13	-.32	.63
T	Dominant[a]	2.44	1.31	**.59**	.20	.08	-.35	.52
T	Selfish[a]	1.48	0.87	**.77**	-.08	.09	-.13	.63
T	Obnoxious[a]	1.37	0.82	**.80**	-.18	.10	-.02	.69
M	Masculine[a]	2.24	1.26	**.47**	.05	**.46**	.01	.44
M	Male[a]	1.91	1.23	**.56**	-.06	.27	.03	.39
SCEN	Self-centered[b]	1.89	1.19	**.52**	-.08	**.44**	-.11	.47
SCEN	Asocial[b]	1.79	1.09	**.52**	-.11	**.41**	.14	.47
SCEN	Nonparticipative[b]	1.46	0.88	**.57**	-.20	.33	.17	.50
SCEN	Loner[b]	1.45	0.88	**.58**	-.16	.24	.17	.45
CI	Normative[b]	1.93	1.04	**.52**	-.10	.31	.18	.41

Table 4. *Continued*

Scale	Item	*Mean*	*SD*	Malevolence	Charisma	Social Awareness	Sensitivity	h^2
CI	Secretive[b]	1.69	1.07	**.70**	-.11	.27	.08	.58
CI	Intragroup competitor[b]	2.05	1.17	**.65**	.10	.12	-.21	.50
FS	Indirect[b]	1.48	0.81	**.71**	-.18	.15	.02	.56
FS	Avoids negatives[b]	2.23	1.21	.34	.11	.17	.03	.15
FS	Evasive[b]	1.46	0.91	**.77**	-.13	.11	.00	.63
MAL	Hostile[b]	1.36	0.82	**.77**	-.18	.13	.00	.65
MAL	Irritable[b]	1.38	0.79	**.80**	-.14	.04	-.01	.66
MAL	Dishonest[b]	1.29	0.73	**.75**	-.19	.08	.00	.60
MAL	Vindictive[b]	1.31	0.74	**.78**	-.19	.06	-.03	.65
ST	Strong[a]	4.36	0.79	.03	**.58**	.19	.05	.37
ST	Bold[a]	4.13	0.91	.09	**.55**	.21	.07	.36
D	Motivated[a]	4.50	0.71	-.09	**.76**	-.01	.06	.58
D	Goal-oriented[a]	4.52	0.71	-.05	**.76**	.01	.00	.58
D	Dedicated[a]	4.59	0.65	-.08	**.76**	-.04	.01	.58
D	Hard-working[a]	4.54	0.74	-.15	**.72**	.01	.04	.54
INT	Intelligent[a]	4.37	0.77	-.12	**.66**	.17	.00	.48
INT	Educated[a]	3.88	1.03	-.03	**.44**	**.45**	.08	.40
INT	Clever[a]	3.87	1.00	.07	**.51**	**.42**	.00	.44

Table 4. *Continued*

Scale	Item	*Mean*	*SD*	Malevolence	Charisma	Social Awareness	Sensitivity	h^2
INT	Wise[a]	4.21	0.88	-.11	**.59**	.24	.04	.42
INT	Knowledgeable[a]	4.33	0.78	-.07	**.64**	.24	.00	.47
INT	Intellectual	3.92	1.01	-.01	**.42**	**.47**	.04	.40
C	Charismatic[a]	4.05	0.97	.07	**.48**	.29	.01	.32
C	Energetic[a]	4.17	0.88	.04	**.62**	.25	.04	.45
C	Enthusiastic[ab]	4.10	0.87	.00	**.62**	.20	.14	.45
C	Dynamic[a]	4.15	0.89	.01	**.67**	.22	.04	.50
C	Inspiring[a]	4.36	0.81	-.07	**.62**	.10	.11	.41
I	Trustworthy[b]	4.51	0.74	-.18	**.54**	-.10	.38	.48
I	Just[b]	4.33	0.86	-.21	**.47**	-.12	.31	.37
VIS	Foresight[b]	4.27	0.82	-.08	**.53**	-.09	.14	.31
VIS	Plans Ahead[b]	4.46	0.77	-.03	**.62**	.01	.13	.41
VIS	Prepared[b]	4.44	0.74	-.08	**.73**	.04	.12	.55
VIS	Anticipatory[b]	4.19	0.89	-.02	**.58**	.08	.14	.36
INS	Positive[b]	4.27	0.78	-.03	**.59**	.09	.24	.42
INS	Morale booster[b]	4.32	0.81	-.06	**.69**	.07	.17	.51
INS	Motive arouser[b]	4.25	0.84	-.05	**.59**	.09	.16	.38
TI	Communicative[b]	4.46	0.71	-.11	**.63**	.08	.12	.43
TI	Integrator[b]	3.97	0.96	-.04	**.42**	.21	.16	.25

Table 4. *Continued*

Scale	Item	*Mean*	*SD*	Malevolence	Charisma	Social Awareness	Sensitivity	h^2
TI	Team builder[b]	4.33	0.82	-.06	**.60**	.10	.16	.40
TI	Informed[b]	4.37	0.79	-.14	**.68**	.11	.11	.51
A	Well-dressed[a]	2.71	1.29	.27	.12	**.67**	.01	.53
A	Classy[a]	2.88	1.24	.19	.24	**.60**	.08	.46
A	Well-groomed[a]	3.22	1.18	.17	.25	**.54**	.08	.38
A	Attractive[a]	2.62	1.21	.34	.10	**.57**	-.02	.46
AUTO	Individualistic[b]	3.36	1.18	.07	.26	**.43**	.11	.27
AUTO	Unique[b]	3.26	1.13	.13	.22	**.51**	.13	.35
AUTO	Independent[b]	3.74	1.05	.08	.33	**.42**	.03	.29
AUTO	Autonomous[b]	3.39	1.15	.12	.21	.36	.05	.19
P	Ritualistic[b]	2.48	1.16	.25	-.03	**.62**	.12	.47
P	Procedural[b]	3.08	1.16	.21	.14	**.52**	.11	.34
P	Formal[b]	2.91	1.18	.21	.10	**.69**	.08	.54
P	Habitual[b]	2.76	1.19	.19	.11	**.68**	.09	.52
SC	Status-conscious[b]	2.48	1.31	.34	.03	**.67**	-.04	.57
SC	Class-conscious[b]	2.42	1.32	.37	.02	**.68**	-.01	.60
S	Understanding[a]	4.10	0.79	-.08	**.40**	-.01	**.52**	.44
S	Sincere[ab]	4.08	0.84	-.13	.35	-.04	**.60**	.50
S	Compassionate[a]	3.82	0.91	-.11	.23	.10	**.73**	.61

Table 4. *Continued*

Scale	Item	*Mean*	*SD*	Malevolence	Charisma	Social Awareness	Sensitivity	h^2
S	Helpful[a]	4.17	0.83	-.07	**.41**	.01	**.53**	.46
S	Sympathetic[a]	3.57	0.97	-.06	.20	.17	**.69**	.55
S	Sensitive[a]	3.16	1.10	-.11	.14	.26	**.57**	.42
S	Forgiving[a]	3.44	1.02	-.11	.25	.28	**.63**	.55
S	Warm[a]	3.41	1.04	-.06	.21	.33	**.61**	.53
I	Honest[b]	4.35	0.82	-.25	.39	-.07	**.46**	.44
	Eigenvalue			12.88	12.85	7.45	4.51	
	Variance explained (%)			16.30	16.27	9.43	5.71	47.72

Note. The group mean for the 79 items was 3.15 (*SD* = 0.43). Values in bold indicate factor loadings ≥ .40. h^2 represents variable communalities. The total variance explained by the three factors is 47.72%. T = Tyranny, M = Masculinity, SCEN = Self-centered, CI = Conflict Inducer, FS = Face Saver, MAL = Malevolent, ST = Strength, D = Dedication, INT = Intelligence, C = Charisma, I = Integrity, VIS = Visionary, INS = Inspirational, TI = Team Integrator, A = Attractiveness, AUTO = Autonomous, P = Procedural, SC = Status Consciousness, S = Sensitivity. [a]Items in Epitropaki and Martin (2004). [b]Items in House et al.'s (1999) CLT Scale.

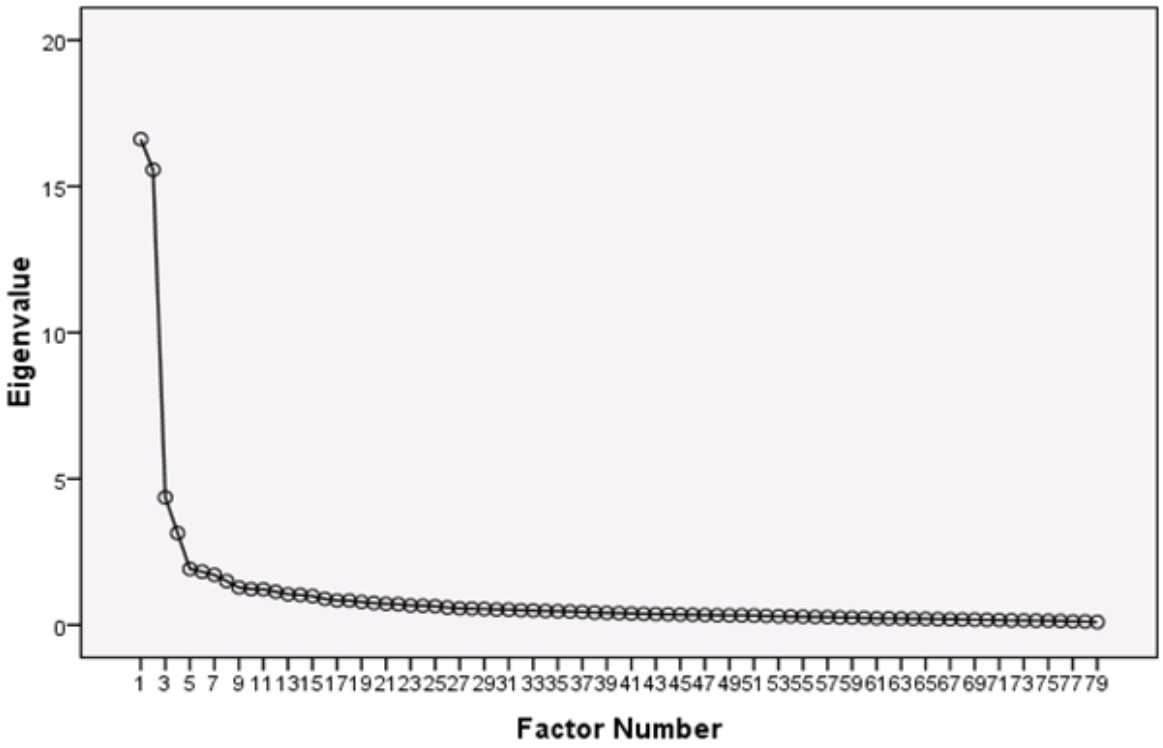

Figure 1. Scree Plot of the Explicit ILTs Measure. Principal-axis analysis with varimax rotation suggests a four-factor solution.

Factor 3 was defined by the Attractive items in the Offermann et al. (1994) scale and the items in three CLT sub-scales: Autonomous, Procedural, and Status Consciousness. These items described a leader's tendency to be bounded by established rules and social expectations. It was noteworthy that the Autonomous items reflected the individualistic culture in the United States from which the study participants were sampled. This factor was labeled as Social Awareness.

Factor 4 was defined predominantly by leader traits from the Sensitivity sub-scale. One item "Honest" from the Integrity sub-scale of the CLT scale also loaded on this factor. The seven items described a leader's interpersonal sensitivity, and this factor was labelled as Sensitivity.

Reliability and descriptive statistics for the four dimensions are presented in Table 5. Participants with or without GNAT data differ in explicit ILTs ratings. Specifically, participants completing both the explicit ILTs measure and at least one GNAT (n= 317) were significantly lower in the ratings on Malevolence [$t(579) = -2.63$, $p < .01$] and Social Awareness [$t(579) = -2.27$, $p = .02$] than those completing the explicit measure only. Also, participants completing both the explicit measure and leadership perception questionnaires (n= 214) tended to provide a higher rating on Sensitivity [$t(579) = 2.07$, $p = .04$] but a lower rating on the Malevolence [$t(518.27) = -3.72$, $p < .01$] dimension, in comparison to those completing the explicit measure only.

In addition, since the implicit ILTs measures were developed primarily based on Offermann et al.'s (1994) factor structure, the 20 items used in the five GNATs were factor analyzed to ensure that their latent structure remained. A five-factor fitting model was confirmed, χ^2 (160) = 606.85, $\chi^2/df = 3.79$, CFI = .93, TLI = .92, RMSEA = .07, SRMR = .05 (Table 1).

Implicit ILTs Measures

Scoring and data reduction. Given the nature of the GNATs (i.e., no response is required if the term belongs to neither categories) and the design of the software program

Table 5. *Descriptive Statistics, Coefficient Alphas, the Number of Items, and Inter-Correlations of the Explicit ILTs Dimensions and Their Correlations with Follower Characteristics and Leadership Perception Scales*

Variables	Malevolence	Charisma	Social Awareness	Sensitivity
Number of item	22	27	13	7
M	1.68	4.32	2.92	3.69
SD	0.72	0.53	0.82	0.72
Explicit ILTs scales[a]				
Malevolence[a]	(.96)			
Charisma[a]	-.14**	(.95)		
Social consciousness[a]	.46**	.32**	(.91)	
Sensitivity[a]	-.22**	.49**	.27**	(.87)
Perceived leader fit[b]	.04	.09	.11	.11
Overall LBDQ rating[b]	.03	.23**	.11	.17*
Consideration[b]	.01	.18*	.05	.15*
Initiating structure[b]	.07	.24**	.18**	.14*
Charismatic leadership[b]	.13	.15*	.19**	.16*
SVA[b]	.10	.14*	.17*	.14*
SE[b]	.10	.18**	.08	.16*
SMN[b]	.07	.16*	.09	.17*
PR[b]	.18*	.05	.25**	.10
UB[b]	.12	.07	.22**	.10
Leader influence[b]	.04	.16*	.04	.15*
Age[c]	-.08	.12*	-.21**	.00
Gender[c]	.09	-.12*	-.03	-.05
Full-time work history[d]	-.12*	.15**	-.14**	.03
Length of current employment[e]	-.16*	.00	-.15*	.06

Note. [a]n = 581. [b]n = 210. [c]n=367. [d]n=366. [e]n=224. Internal consistency estimates are in the diagonal. LBDQ = Leader Behavior Description Questionnaire. SVA = Strategic Vision and Articulation; SE = Sensitivity to the Environment; SMN = Sensitivity to Member Needs; PR = Personal Risk; UB = Unconventional Behavior.

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

employed (i.e., respondents cannot exit each GNAT once it is started), response latency and accuracy for each trial in a GNAT were recorded even without any response attempts. To ensure correct scoring, procedures were taken to include only the responses that might reflect attentive responding. Each of the five GNATs was examined separately, and two indices of association strength were calculated for each GNAT: the accuracy and latency index. As the first step, the number of response attempts (i.e., press the space bar) was examined for each GNAT in order to remove responses from participants who might not be attentive to the task. Participants with the number of response attempts above or below two standard deviations of the group mean response attempts on a given GNAT were removed. This procedure resulted in 358, 355, 352, 349, and 359 participants remaining for the Sensitivity, Dedication, Intelligence, Charisma, and Tyranny GNAT, respectively. Next, scoring algorithms for the accuracy and latency index of association strength followed the recommendations from Nosek and Banaji (2001) and Greenwald et al. (2003), respectively.

In computing the accuracy index of association strength, a sensitivity (*d'*) score was first calculated for each critical block as a difference between z-scores of the proportion of hits (correct "go" response for target items) and false alarms (incorrect "go" response for distracter items, Nosek & Banaji, 2001). Corrections for cells with perfect hit and zero error rates were made based on Banaji and Greenwald's (1995) approach, in which the hit rate and false alarm rate are estimated by adding a single hypothetical trial to the participant's data. As such, a perfect rate was changed from 1.0 to (the number of trials + the observed proportion of correct responses averaged across participants)/(the number of trials + 1); a

zero rate was changed to the division of the observed proportion of correct responses averaged across participants by the number of trials plus one. The application of this approach resulted in a correction of 0.73 for Sensitivity, 0.71 for Dedication, 0.73 for Intelligence, 0.70 for Charisma, and 0.71 for Tyranny, divided by the number of trials. A *d'* score of zero or below indicates that participants were either unable to discriminate any signal from noise or were not performing the task as instructed. Thus, blocks with *d'* scores of zero or below (i.e., zero is chance responding) were removed from following analyses. This procedure resulted in the final sample of 300, 296, 300, 275, and 298 respondents for the Sensitivity, Dedication, Intelligence, Charisma, and Tyranny GNAT under the response accuracy analysis, respectively. The accuracy index is a difference between a *d'* score for the target attribute + leader condition and a *d'* score for the target attribute + non-leader condition in a given GNAT. A greater score indicates a stronger association between a given target attribute and the leader category.

The computation of the latency index, the *D* score, was based on Greenwald et al.'s (2003) suggestions. Participants who had an error rate of greater than 40% on the task overall were removed as were trails with a response latency of less than 200 milliseconds because these might reflect random responding (Boldero et al., 2007). The final samples included 278, 261, 271, 241, and 273 participants for the Sensitivity, Dedication, Intelligence, Charisma, and Tyranny GNAT under the response latency analysis, respectively. Only the target trials were used for computing the *D* score because the distracter items were considered noise. Error trial latencies were replaced with the block mean plus 300

milliseconds (Boldero et al., 2007; Greenwald et al., 2003). The *D* score is the division of a latency difference between the two critical blocks by the standard deviation of all the latencies in the GNAT. A higher score indicated a stronger association between the target ILTs attribute (e.g., Intelligence) and the leader category.

Strength of associations. Using the accuracy index as a measure of association strength, this study first examined whether the traits identified as the content of ILTs were also more strongly associated with the leader category than with the non-leader category under spontaneous information processing. Results showed that participants showed lower sensitivity to Sensitivity + Leader (d' = 1.67) than to Sensitivity + Non-leader [d' = 1.92; $t(299) = -4.91$, $p < .01$, Cohen's $d = .28$], suggesting Sensitivity was highly associated with non-leader. Dedication had a stronger association with leader (d' = 1.68) than with non-leader [d' = 1.46; $t(295) = 4.40$, $p < .01$, Cohen's $d = .26$]. Participants showed greater sensitivity to Intelligence + Leader (d' = 1.85) than to Intelligence + Non-leader [d' = 1.64; $t(299) = 4.34$, $p < .01$, Cohen's $d = .25$], suggesting Intelligence had stronger association with leaders. However, in the GNAT the traits associated with Charisma and Tyranny appeared not to be used in distinguishing leaders from non-leaders, indicated by no difference between sensitivity to Charisma + Leader (d' = 1.66) and sensitivity to Charisma + Non-leader [d' = 1.61; $t(274) = 0.96$, $p = .34$, Cohen's $d = .06$] and between sensitivity to Tyranny + Leader (d' = 1.65) and sensitivity to Tyranny + Non-leader [d' = 1.58; $t(297) = 1.31$, $p = .19$, Cohen's $d = .08$]. All the effect sizes were small to moderate according to Cohen's (1988) convention. Cronbach's α for each of the GNATs are presented in Table 6.

The internal consistency estimates were somewhat lower than those reported for conventional explicit measures, but were relatively satisfactory for implicit measures, especially for the GNAT (Bosson, Swann, & Pennebaker, 2000; Nosek & Banaji, 2001).

Using the latency index as a measure of association strength, this study examined whether the traits identified as the content of ILTs were more strongly associated with the leader category than with the non-leader category under spontaneous information processing. Results showed that participants showed no difference in reaction time between Sensitivity + Leader (M = 604.12) and Sensitivity + Non-leader (M = 603.80). The D score of 0.01 suggested that Sensitivity was not used to distinguish leaders from non-leaders, $t(277) = -0.40$, $p = .69$, Cohen's d = .02). However, reaction time was shorter when Dedication was paired with leaders (M = 597.40) than with non-leaders (M = 640.44). A stronger association between Dedication and leader was found, $D = 0.20$, $t(260) = 9.07$, $p < .01$, Cohen's $d = .56$. Participants responded faster to Intelligence + Leader (M = 587.80) than to Intelligence + Non-leader (M = 620.41). The D score of 0.16 suggested that Intelligence had a stronger association with leader, $t(270) = 7.66$, $p < .01$, Cohen's $d = .47$. Similarly, the traits of Charisma and Tyranny were more strongly associated with the leader category than with the non-leader category, M = 596.31 for Charisma + Leader versus M = 621.33 for Charisma + Non-leader, and M = 608.04 for Tyranny + Leader versus M = 627.60 for Tyranny + Non-leader. The latency indices indicated a stronger association of the leader category with Charisma ($D = 0.12$, $t(240) = 5.11$, $p < .01$, Cohen's $d = .33$) and Tyranny ($D = 0.10$, $t(272) = 4.50$, $p < .01$, Cohen's $d = .27$). According to Cohen's (1988) heuristic, a moderate effect size

was found for all the GNATs, except for Sensitivity. Cronbach's α for each of the GNATs are presented in Table 6 and reached the acceptable level (Nosek & Banaji, 2001).

Table 6. *Reliability of the Implicit ILTs Measures (GNATs)*

	$\alpha_{\text{Leader-role + ILT}}$	$\alpha_{\text{Non-leader-role + ILT}}$	$\alpha_{\text{Strength of associations}}$
		Accuracy Index	
Sensitivity[a]	.71	.77	.36
Dedication[b]	.71	.75	.31
Intelligence[a]	.75	.77	.30
Charisma[c]	.78	.80	.27
Tyranny[d]	.76	.76	.36
		Latency Index	
Sensitivity[e]	.76	.80	.31
Dedication[f]	.72	.83	.37
Intelligence[g]	.73	.80	.32
Charisma[h]	.77	.81	.34
Tyranny[i]	.80	.81	.44

Note. [a]n = 300. [b]n = 296. [c]n=275. [d]n=298. [e]n=278. [f]n=261.[g]n=271. [h]n=241. [i]n=273. Measures of internal reliability (Cronbach's a) were based on four parcels. Reliabilities were reported for the critical blocks of trials (attribute target + leader-like and attribute target + non-leader-like) and for strength of associations (see Results section for further details).

Among participants remaining for the GNAT analyses, those with both explicit and implicit ILTs data were not significantly different from those completing implicit ILTs measures only in terms of the GNAT scores, regardless of association strength indices. Similarly, no significant differences in strength of associations were found between

participants completing both implicit ILTs measures and leadership perception ratings and those with implicit ILTs measures only.

Variable-Oriented Approach

Relations among dimensions of the explicit ILTs measure. Relations among the ILTs dimensions in the explicit measure are shown in Table 5. Four dimensions were significantly correlated with one another. Particularly, Malevolence was positively related to Social Awareness (r = .46) but negatively related to Charisma (r = -.14) and Sensitivity (r = -.22). Charisma was more strongly associated with Social Awareness (r = .32) and Sensitivity (r = .49). Social Awareness and Sensitivity were positively related (r = .27). Overall, this pattern suggested a stronger relationship between Malevolence and Social Awareness and between Charisma and Sensitivity.

Relations among dimensions within the implicit ILTs measures. Correlations among ILTs traits within and across indices of strength association are presented in Table 7. Using the accuracy index as a measure of association strength, Dedication was positively correlated with Intelligence (r = .16) and Charisma (r = .20). In the latency measure of association strength, all the five ILTs traits were positively associated with one another, except for the relation between Intelligence and Charisma and the relations associated with Tyranny.

Across two types of strength association index, indices for all corresponding ILTs traits were strongly associated with each other, indicating convergent validity evidence for the accuracy and latency approach to the GNAT.

Table 7. *Means and Standard Deviations of the Implicit ILTs Measures Scored by Response Accuracy and Their Inter-Correlations and Correlations with Corresponding Explicit ILTs Dimensions*

Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
Implicit Measure: Accuracy Index												
1. Sensitivity[a]	-0.25	0.88										
2. Dedication[b]	0.22	0.87	.08									
3. Intelligence[a]	0.22	0.86	.08	.16**								
4. Charisma[c]	0.05	0.88	.11	.20**	.10							
5. Tyranny[d]	0.07	0.89	-.06	.09	.01	-.03						
Implicit Measure: Latency Index												
6. Sensitivity[e]	-0.01	0.34	.71**	.12*	.10	.15*	-.05					
7. Dedication[f]	0.20	0.35	.10	.73**	.21**	.25**	.10	.18**				
8. Intelligence[g]	0.16	0.33	.13*	.10	.73**	.09	-.04	.16*	.22**			
9. Charisma[h]	0.12	0.36	.10	.18**	.10	.73**	-.01	.19**	.30**	.11		
10. Tyranny[i]	0.10	0.37	-.07	.09	.10	-.03	.74**	-.03	.10	.06	.00	

Table 7. *Continued*

Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
Explicit ILTs scales[j]												
11. Sensitivity	3.66	0.76	.08	.05	.01	.05	-.03	.14*	.04	-.01	.04	-.05
12. Dedication	4.53	0.61	.09	.00	-.02	.01	.00	.08	-.03	.00	.11	-.02
13. Intelligence	4.20	0.70	.00	-.02	-.10	-.01	.04	.04	-.09	-.01	.04	.07
14. Charisma	4.19	0.73	-.01	.02	-.01	.01	.01	-.02	.04	.04	.09	.03
15. Tyranny	1.77	0.90	-.05	-.01	-.04	-.06	.05	-.09	-.07	.01	-.09	.04

Table 7. *Continued*

Variables	11	12	13	14	15
Explicit ILTs scales[j]					
11. Sensitivity	(.81)				
12. Dedication	.26**	(.89)			
13. Intelligence	.29**	.61**	(.82)		
14. Charisma	.34**	.58**	.59**	(.87)	
15. Tyranny	-.27**	-.13**	-.03	.01	(.85)

Note. [a]*n* = 300. [b]*n* = 296. [c]*n*=275. [d]*n*=298. [e]*n*=278. [f]*n*=261.[g]*n*=271. [h]*n*=241. [i]*n*=273. [j]*n*=581.Internal consistency estimates for explicit ILTs scales are in the diagonal.

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

Relationships between the explicit ILTs measure and leadership perceptions. As shown in Table 5, the explicit ILTs dimensions were related to some leadership perception measures. ILT ratings on Malevolence were correlated with leadership rating on Personal Risk. Charisma and Sensitivity were the ILTs factors that were correlated with most of the leadership measures. Specifically, they both were positively associated with ratings on the overall LBDQ, Consideration, Initiating Structure, the overall charismatic leadership, three dimensions of charismatic leadership rating (Strategic Vision and Articulation, Sensitivity to Member Needs, and Sensitivity to the Environment), and perceived leader influence. In addition, individuals with the belief that leaders should be greatly aware of procedures and social status tended to give a higher rating to their immediate supervisors on Initiating Structure, the overall charismatic leadership, Strategic Vision and Articulation, Personal Risk, and Unconventional Behavior.

Due to the small to moderate correlations among the four ILTs factors, the unique impacts of each of the ILTs dimensions on leadership perceptions controlling for the effects of other ILTs factors and subordinates' characteristics were further examined. Hierarchical regression analysis was conducted for each of the leadership dimensions by first entering age, gender, full-time work experience, and the tenure in the current job and then regressing leadership ratings on centered ILTs scores given high correlations among some ILTs dimensions (Table 8). Results showed Malevolence uniquely contributed to the prediction of leadership ratings on Sensitivity to the Environment (β = .22) and Sensitivity to Member Needs (β = .19). The emphasis on leaders' charisma significantly predicted behavioral ratings

on the overall leader behavior measured by the LBDQ (β = .17) and Initiating Structure (β = .18). Social Awareness significantly predicted behavioral ratings on Personal Risk (β = .20) and Unconventional Behavior (β = .19). Lastly, Sensitivity had unique influence on the Sensitivity to Member Needs ratings only (β = .18).

To further examine the predictability of four ILTs factors above and beyond the perceived fit between one's ILT and his/her supervisor's characteristics, hierarchical regression analysis was conducted for each scale of leadership perceptions to control for the effects of subordinates' characteristics and the perceived leader fit. As the first step, age, gender, work experience, and the tenure in the current job were entered. Then perceived leader fit was entered, followed by the centered ILTs scores (Table 9). All predictor variables were centered due to significant correlations between some of them. Results demonstrated that prototypicality ratings on the four dimensions as a whole significantly predicted all the overall and dimensional leadership ratings, except for Strategic Vision and Articulation, Unconventional Behavior, and perceived leader influence. In particular, Malevolence uniquely predicted the ratings on overall charismatic leadership (β = .11), Sensitivity to the Environment (β = .18), and Sensitivity to Member Needs (β = .14). Charisma significantly predicted the overall leader behavior measured by the LBDQ (β = .17), Consideration (β = .13), Initiating Structure (β = .18), and Sensitivity to the Environment (β = .12), above and beyond subordinates' characteristics and perceived leader fit. Interestingly, Social Awareness predicted behavioral ratings on Consideration (β = -.13), Sensitivity to the Environment (β = -.14), and perceived leader influence (β = -.13) in the negative direction, although its unique

influences on Personal Risk (β = .16) and Unconventional Behavior (β = .16) remained. The emphasis on a leader's interpersonal sensitivity remained its unique influence on leadership ratings on Sensitivity to Member Needs (β = .11). However, the amount of variance accounted for by the four ILTs factors in each of the leadership measures was relatively small and not larger than the variance explained by the four subordinates' characteristics measured herein. These findings seemed to suggest that leadership ratings were better predicted by the perceived fit between one's ILT and his/her immediate supervisor than one's image of a leader alone.

Even though the power of the four ILTs factors was weaker than the perceived leader fit in predicting the three leadership measures in this study, the significant, unique contribution of some of the ILTs factors indicated the distinction between one's ILT and his/her perceived leader fit. Indeed, their differential relations with leadership perceptions were also demonstrated by nonsignificant correlations between ILTs and the perceived fit of a leader into his/her subordinate's ILT (Table 5). These provided stronger evidence that the ILTs construct was distinct from the ILT congruence construct and eliminated the concern that the explicit ILTs measures simply reflected what one's immediate supervisor was.

Table 8. *Multiple Regression of Leadership Perceptions on Explicit ILTs Dimensions Controlling for Subordinate Characteristics (n =205)*

	Leadership Perception										
	Perceived Leader Fit	Overall LBDQ	Consideration	Initiating Structure	Charismatic Leadership	SVA	SE	SMN	PR	UB	Leader Influence
Step 1											
Age	.05	-.09	-.02	-.18	-.05	-.09	-.10	.00	.02	.01	.07
Gender	-.14	-.15*	-.16*	-.07	-.14	-.12	-.16*	-.21**	-.02	-.03	-.18*
Full-time work history	-.04	.07	-.01	.21	.03	.08	.08	.02	-.11	-.05	-.09
Length of current employment	-.02	-.03	.00	-.07	-.02	-.04	.00	.02	-.01	-.04	-.04

Table 8. *Continued*

	Leadership Perception										
	Perceived Leader Fit	Overall LBDQ	Considera -tion	Initiating Structure	Charismatic Leadership	SVA	SE	SMN	PR	UB	Leader Influence
Step 2											
Malevolence	.06	.11	.10	.08	.16	.11	.22**	.19*	.11	.06	.14
Charisma	-.01	.17*	.12	.18*	.02	.03	.11	.05	-.07	-.04	.10
Social Awareness	.07	-.03	-.07	.07	.08	.09	-.09	-.04	.20*	.19*	-.09
Sensitivity	.09	.10	.11	.04	.14	.10	.15	.18*	.10	.06	.14
ΔR^2	.02	.05*	.03	.06*	.06*	.04	.06*	.05*	.07**	.05*	.03
Total R^2	.04	.08*	.06	.08*	.08*	.06	.09*	.09*	.08*	.05	.07

Note. All predictor variables were centered due to high correlations among them. LBDQ = Leader Behavior Description Questionnaire. SVA = Strategic Vision and Articulation; SE = Sensitivity to the Environment; SMN = Sensitivity to Member Needs; PR = Personal Risk; UB = Unconventional Behavior.
* $p < .05$. ** $p < .01$.

Table 9. *Multiple Regression of Leadership Perceptions on Explicit ILTs Dimensions Controlling for Subordinate Characteristics and Perceived Leader Fit (n =205)*

	Overall LBDQ	Consideration	Initiating Structure	Charismatic Leadership	SVA	SE	SMN	PR	UB	Leader Influence
Step 1										
Age	-.09	-.02	-.18	-.05	-.09	-.10	.00	.02	.01	.07
Gender	-.15*	-.16*	-.07	-.14	-.12	-.16*	-.21**	-.02	-.03	-.18*
Full-time work history	.07	-.01	.21	.03	.08	.08	.02	-.11	-.05	-.09
Length of current employment	-.03	.00	-.07	-.02	-.04	.00	.02	-.01	-.04	-.04
Step 2										
Perceived Leader Fit	.78**	.77**	.42**	.82**	.80**	.73**	.76**	.58**	.44**	.64**
ΔR^2	.59**	.58**	.17**	.66**	.62**	.53**	.57**	.32**	.19**	.40**
Step 2										
Malevolence	.07	.05	.06	.11*	.07	.18**	.14**	.08	.03	.11
Charisma	.17**	.13*	.18*	.03	.03	.12*	.06	-.06	-.04	.10

Table 9. *Continued*

	Overall LBDQ	Consideration	Initiating Structure	Charismatic Leadership	SVA	SE	SMN	PR	UB	Leader Influence
Social Awareness	-.08	-.13*	.04	.03	.04	-.14*	-.09	.16*	.16*	-.13*
Sensitivity	.03	.04	.00	.07	.03	.08	.11*	.05	.02	.08
ΔR^2	.03**	.02*	.04*	.02*	.01	.03**	.02*	.04*	.03	.02
Total R^2	.65**	.62**	.24**	.70**	.65**	.59**	.64**	.37**	.22**	.46**

Note. All predictor variables were centered due to high correlations among them. LBDQ = Leader Behavior Description Questionnaire. SVA = Strategic Vision and Articulation; SE = Sensitivity to the Environment; SMN = Sensitivity to Member Needs; PR = Personal Risk; UB = Unconventional Behavior.
* $p < .05$. ** $p < .01$.

Relationships between the implicit ILTs measures and leadership perceptions. As noted above, only Sensitivity, Dedication and Intelligence traits were associated with the leader-non-leader distinction when the accuracy index of association strength was employed. On the other hand, using the latency index as a measure of association strength individuals distinguished leaders from non-leaders based on the Dedication, Intelligence, Charisma, and Tyranny traits. Therefore, only the implicit ILTs measures associated with these particular traits were included in examining the relationships between ILTs and leadership perceptions.

Table 10 shows that no relationships were found between ILTs and leadership ratings, regardless of association strength index. Therefore, no multiple regression was conducted to compare the predictability of these ILTs traits. The relationships of the perceived leader fit with implicit ILTs measures were similar to those with explicit ILTs factors, with close to zero correlations, indicating that the ILTs construct measured by the implicit measures were distinct from the ILT congruence construct.

Relationships of explicit and implicit ILTs measures with subordinates' characteristics. Correlations were used to examine the extent to which the explicit and implicit ILTs measures were related to subordinate characteristics (i.e., age, gender, subordinates' full-time work history, and length of current employment). Table 5 shows that subordinate age was positively associated with ILTs ratings on Charisma (r = .12) but negatively related to Social Awareness (r = -.21). Females and males differed in their ILTs concerning Charisma, indicating that females tended to consider individuals high in

Table 10. *Correlations of Strength of Associations with Leadership Perception Scales and Subordinate Characteristics*

	Accuracy Index			Latency Index			
Variables	Sensitivity	Dedication	Intelligence	Dedication	Intelligence	Charisma	Tyranny
Perceived leader fit	-.06[a]	-.06[a]	-.01[b]	-.06[k]	-.02[o]	.04[s]	-.01[x]
Overall LBDQ rating	-.01[b]	-.06[e]	-.02[h]	-.08[l]	-.12[p]	-.03[t]	.03[y]
Consideration	.03[b]	-.08[e]	-.02[h]	-.10[l]	-.08[p]	-.03[t]	.00[y]
Initiating structure	-.05[b]	-.02[e]	-.02[h]	-.03[l]	-.13[p]	-.02[t]	.07[y]
Charismatic leadership	.05[a]	.04[a]	.03[b]	.04[k]	-.04[o]	.03[s]	-.03[x]
SVA	.05[a]	.00[a]	.01[b]	.00[k]	-.01[o]	.05[s]	-.03[x]
SE	.05[a]	.01[a]	.00[b]	.01[k]	-.12[o]	.05[s]	-.05[x]
SMN	.03[a]	.03[a]	-.04[b]	.01[k]	-.12[o]	.02[s]	.03[x]
PR	.04[a]	.10[a]	.07[b]	.09[k]	-.03[o]	-.04[s]	.00[x]
UB	.06[a]	.07[a]	.10[b]	.10[k]	.08[o]	.00[s]	-.04[x]

Table 10. *Continued*

Variables	Accuracy Index			Latency Index			
	Sensitivity	Dedication	Intelligence	Dedication	Intelligence	Charisma	Tyranny
Leader influence	-.07[a]	-.05[a]	.01[b]	-.07[k]	-.07[o]	.03[s]	.02[x]
Age	.11[c]	.03[f]	-.01[i]	.10[m]	.14[q*]	.03[u]	-.04[z]
Gender	-.05[c]	-.02[f]	< .01[i]	-.03[m]	.05[q]	.02[u]	.09[z]
Full-time work history	.04[c]	.08[f]	-.02[j]	.11[m]	.08[q]	.08[u]	-.08[z]
Length of current employment	.08[d]	.05[g]	.13[d]	.21[n*]	.12[r]	.03[v]	-.04[aa]

Note. The GNATs for Sensitivity, Charisma, and Tyranny were excluded because these three traits were not used in distinguishing leaders from non-leaders. LBDQ = Leader Behavior Description Questionnaire. SVA = Strategic Vision and Articulation; SE = Sensitivity to the Environment; SMN = Sensitivity to Member Needs; PR = Personal Risk; UB = Unconventional Behavior. [a]*n* = 156. [b]*n* = 159. [c]*n*=262. [d]*n*=167. [e]*n*=158. [f]*n*=259. [g]*n*=165. [h]*n*=161. [i]*n*=265. [j]*n*=264. [k]*n*=139. [l]*n*=140. [m]*n*=232. [n]*n*=146. [o]*n*=145. [p]*n*=147. [q]*n*=241. [r]*n*=152. [s]*n*=126. [t]*n*=128. [u]*n*=214. [v]*n*=134. [x]*n*=141. [y]*n*=143. [z]*n*=237. [aa]*n*=149.

* $p < .05$.

Charisma to be leaders (r = -.12). Subordinates with more full-time work experience were more likely to perceive leaders as individuals high in Charisma (r = .15) but low in Malevolence (r = -.12) and Social Awareness (r = -.14). Subordinates staying in their current job longer expected leaders to be low in Malevolence (r = -.16) and Social Awareness (r = -.15) traits.

Using the accuracy index as a measure of association strength, none of the four follower's characteristics were associated with ILTs, indicating that ILTs assessed under spontaneous information processing did not vary by gender, age, full-time employment history, and length of current employment (Table 10). However, when measuring ILTs using the latency index, a slightly stronger association between Intelligence and leaders was found in older people than in younger people (r = .14). Participants staying in their current job longer were more likely to perceive individuals who were dedicated and hard-working as leaders (r = .21, Table 10).

Correspondence between explicit and implicit ILTs measures. As noted in the Method section, only five ILTs sub-scales of the Offermann et al.'s (1994) measure were included in the GNATs. The correspondence between explicit and implicit ILTs measures was examined by correlating prototypicality ratings on attribute terms included in the GNATs with the association strength indices. Table 7 shows that no relations revealed between the corresponding explicit and implicit measure for any of the five ILTs dimensions, with one exception for Sensitivity in which explicit ratings were associated with the latency index of association strength (r = .14).

Person-Oriented Approach

Explicit ILTs measure.

ILTs profiles. With a subset of the sample (n = 205) who completed both the ILTs measures and the leadership perception questionnaires, cluster analysis was conducted on four ILTs variables. No missing data occurred, but 5 (2.4 %) cases were removed as outliers. The data cleaning procedure resulted in 200 cases remaining for clustering. A bigger drop in ESS increment occurred from a seven- to eight-cluster solution. Figure 2 presents the ESS plot. The 8-cluster solution explained 69.12% of the ESS. The final cluster profiles, cluster sizes, homogeneity coefficients, and cluster means and standard deviations are shown in Table 11. Homogeneity coefficients were less than one for five of the eight cluster profiles, and slightly above one for the remaining profiles, indicating good similarity among members within each of the clusters.

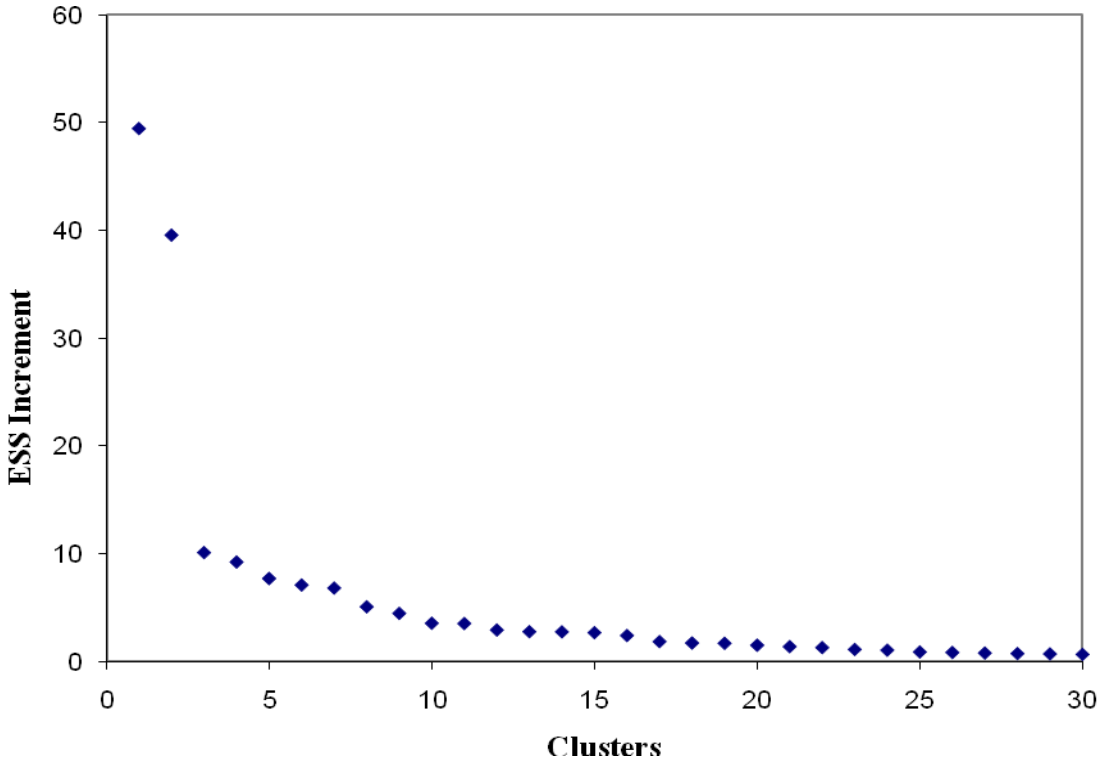

Figure 2. Error Sum of Squares for explicit ILTs dimensions. Initial cluster analysis suggests an 8-cluster solution.

Multivariate analysis of variance (MANOVA) was performed to determine whether cluster profiles were different in the four ILTs factors. Because the sample sizes among clusters were unequal and the assumption of homogeneity of variance-covariance matrices was not met (Box's M test was significant at $p < .001$), Pillai's Trace statistic, rather than Wilks' lambda, was reported. Results indicated that there was an overall effect of cluster profile membership on the ILTs factors, omnibus $F(28, 768) = 35.04$, $p < .01$, $\eta^2 = .56$.

Table 11. *Final Mean (SD) and Homogeneity Coefficients for ILT Cluster Profiles of the Explicit ILTs Measure (n =200)*

Profile	*n*	HC	Malevolence	Charisma	Social Awareness	Sensitivity
1	10	1.01	2.65 (0.40)	4.77 (0.17)	3.64 (0.48)	3.49 (0.64)
2	9	1.03	3.15 (0.68)	3.82 (0.23)	3.45 (0.38)	3.16 (0.31)
3	29	0.62	1.49 (0.34)	4.37 (0.29)	2.33 (0.42)	3.06 (0.31)
4	16	1.06	1.71 (0.44)	3.43 (0.40)	2.60 (0.56)	3.20 (0.35)
5	44	0.56	1.37 (0.32)	4.44 (0.28)	3.18 (0.39)	3.87 (0.28)
6	45	0.51	1.15 (0.17)	4.05 (0.26)	2.12 (0.41)	3.75 (0.38)
7	23	0.69	1.57 (0.34)	4.82 (0.21)	3.94 (0.53)	4.53 (0.38)
8	24	0.47	1.17 (0.23)	4.82 (0.18)	2.59 (0.39)	4.59 (0.38)
Overall	200	-	1.51 (0.58)	4.34 (0.48)	2.82 (0.75)	3.78 (0.63)
Univariate *F*			63.11	60.49	57.65	59.68
Stepdown *F*			63.11	59.50	32.85	33.13

Note. Standard deviations are presented in (parentheses) below each mean.
HC = homogeneity coefficient (cluster similarity index), where lower values (less than 1) indicate better similarity among members. The 8-cluster solution explained 69.12% of the error sum of squares (ESS).

Follow-up univariate analysis of variance (ANOVA) revealed significant differences in prototypicality ratings among profiles, and the effects remained significant when using the Roy-Bargman stepdown procedure, which was used to account for related dependent variables. More specifically, significant differences were found for Malevolence [$F(7, 192) = 63.11$, $p < .01$], Charisma [$F(7, 191) = 59.50$, $p < .01$], Social Awareness [$F(7, 190) = 32.85$, $p < .01$], and Sensitivity [$F(7, 189) = 33.13$, $p < .01$]. Bonferroni post hoc tests indicated most of profile means on the four factors were significantly different from one another ($p < .05$). Based on all the guidelines for determination of the optimal number of clusters described above, the 8-cluster solution was superior in maximizing both between-cluster differences and cluster homogeneity.

Differences between ILTs profiles. Standardized means of four ILTs variables across eight clusters were graphed in Figure 3. Higher scores on each variable indicate that the dimension is more characteristic of a leader for members in a specific profile group, whereas lower scores indicate that the dimension is less characteristic. Examination of the line graph suggested that all ILTs profiles differed from each other in shape (i.e., patterns of scores), level (i.e., overall elevation), or both. Individual cluster profile line graphs are presented in Figures 4.1 through 4.8.

Profile 1 (Figure 4.1). The members in Profile 1 expected a leader to be above average in Malevolence, Charisma, and Social Awareness but be slightly less in interpersonal sensitivity traits than average.

Profile 2 (Figure 4.2). The members in this cluster were somewhat surprising, as they had the highest rating on the Malevolence dimension among all profiles. Also, they preferred a leader who is below average on Charisma and Sensitivity. Their image of a leader seemed counterintuitive to the leadership theories that advocate transformational leadership (Judge & Piccolo, 2004) and the consideration aspect of leader behavior (Judge et al., 2004).

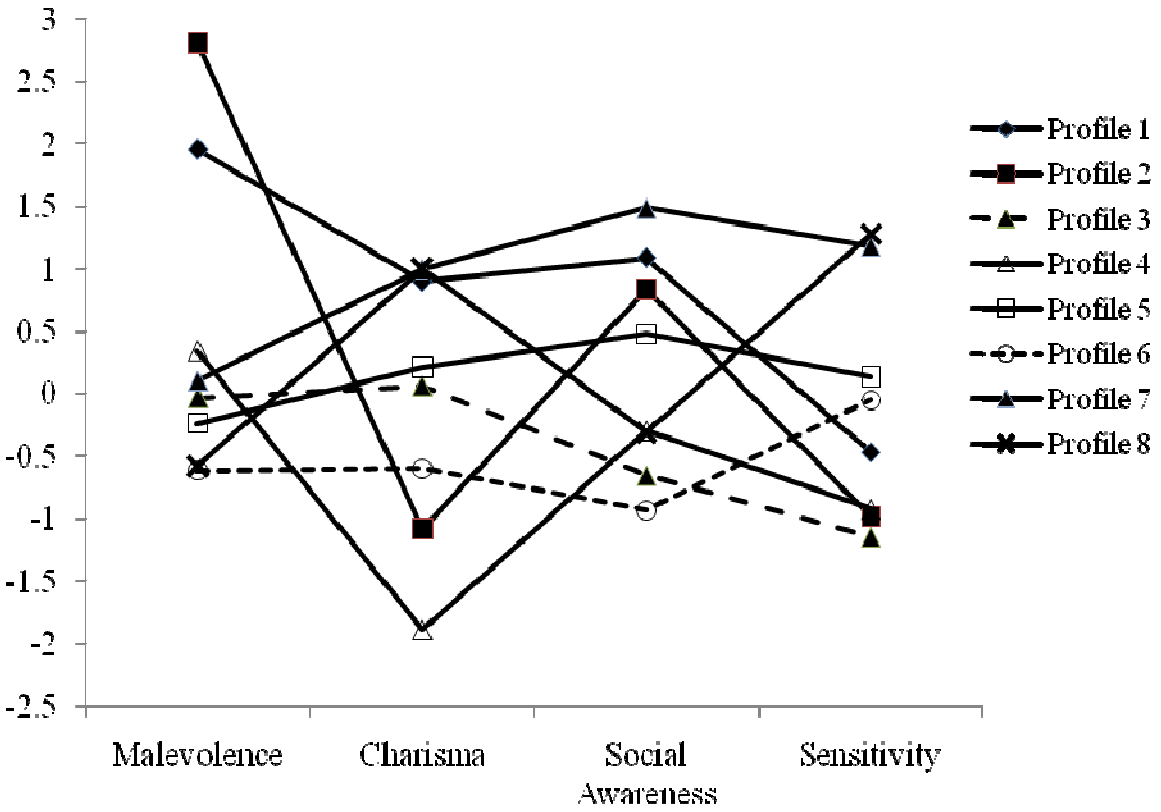

Figure 3. Standardized scores for explicit ILTs dimensions, by cluster profile.

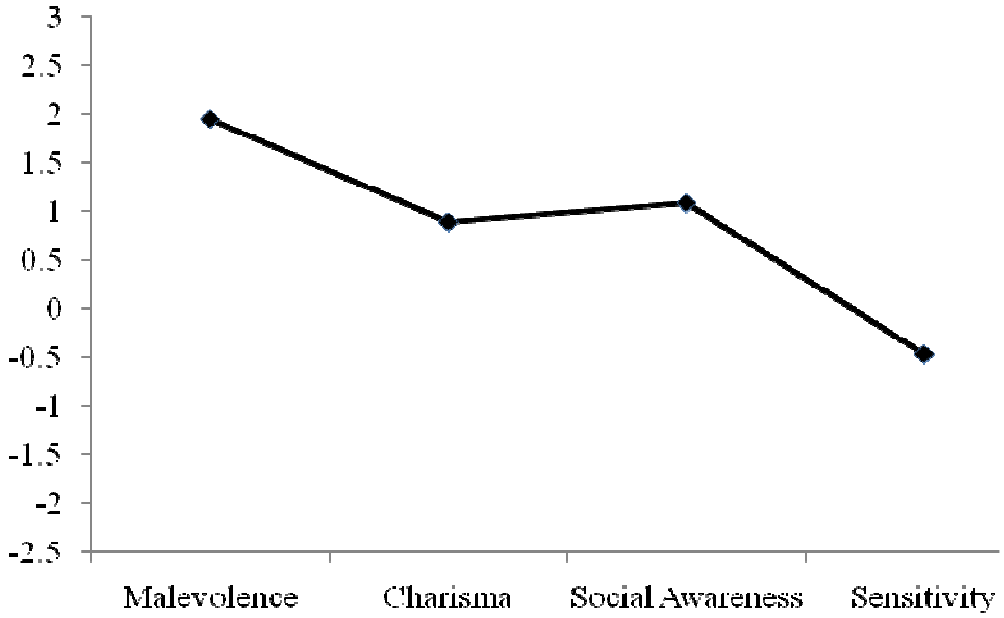

Figure 4.1. Standardized scores for explicit ILTs dimensions for Cluster Profile 1.

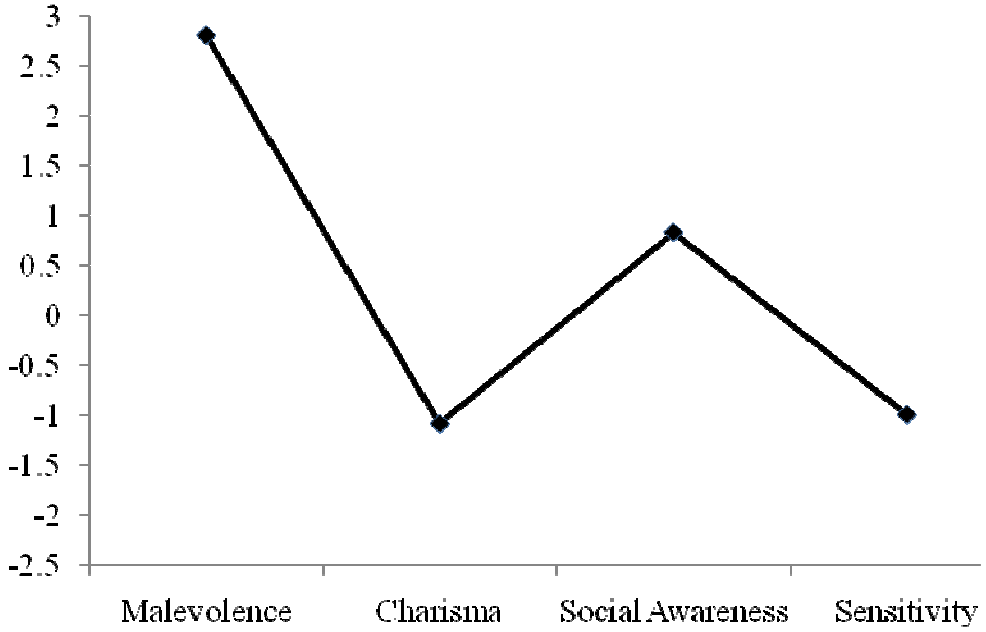

Figure 4.2. Standardized scores for explicit ILTs dimensions for Cluster Profile 2.

Profile 3 (Figure 4.3). This group had an image of a leader with average Malevolence and Charisma but below average in Social Awareness and Sensitivity. Surprisingly, in this profile attention to procedures and social status in leading others and interpersonal sensitivity were not weighed as much as they were in the other cluster profiles in leader identification.

Profile 4 (Figure 4.4). The members in Profile 4 tended to perceive individuals who were average on traits such as tyranny, malevolence, and social consciousness but less charismatic and sensitive as leaders. Interestingly, this group did not seem to value Charisma in a leader as much as did members of the other profiles, and it was the lowest in Charisma.

Profile 5 (Figure 4.5). This group preferred a leader who was above average in Charisma, Social Awareness, and Sensitivity but below average in traits associated with Malevolence. This leader image seemed close to most of the leadership theories (Conger et al., 2000; Judge & Piccolo, 2004; Judge et al., 2004). This group was second in size to Profile 6.

Profile 6 (Figure 4.6). This profile was unique from the seven other profiles in that it was the only cluster where all the four scores were below the subscale means, indicating that this group considered a leader as someone who exhibited less destructive behaviors and was not particularly charismatic, status-conscious, and sensitive.

Profile 7 (Figure 4.7). The pattern of scores displayed an image of a leader who was above average on all the four ILTs dimensions. Interestingly, besides the emphasis on Charisma, Social Awareness, and Sensitivity traits the members of this group also valued traits associated with the desire and tendency to do bad.

Profile 8 (Figure 4.8). Members of this profile believed leaders should be more charismatic and considerate than average but did not exhibit many behaviors associated with Malevolence and Social Awareness. This pattern of scores seems consistent with the leadership literature that emphasizes the role of leader charisma and supportive behavior in leadership processes.

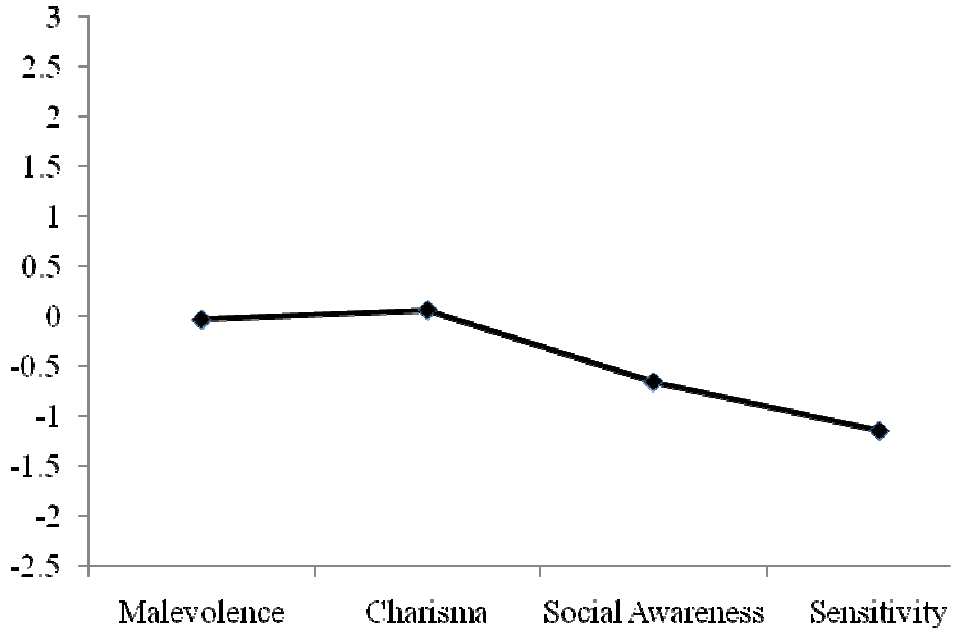

Figure 4.3. Standardized scores for explicit ILTs dimensions for Cluster Profile 3.

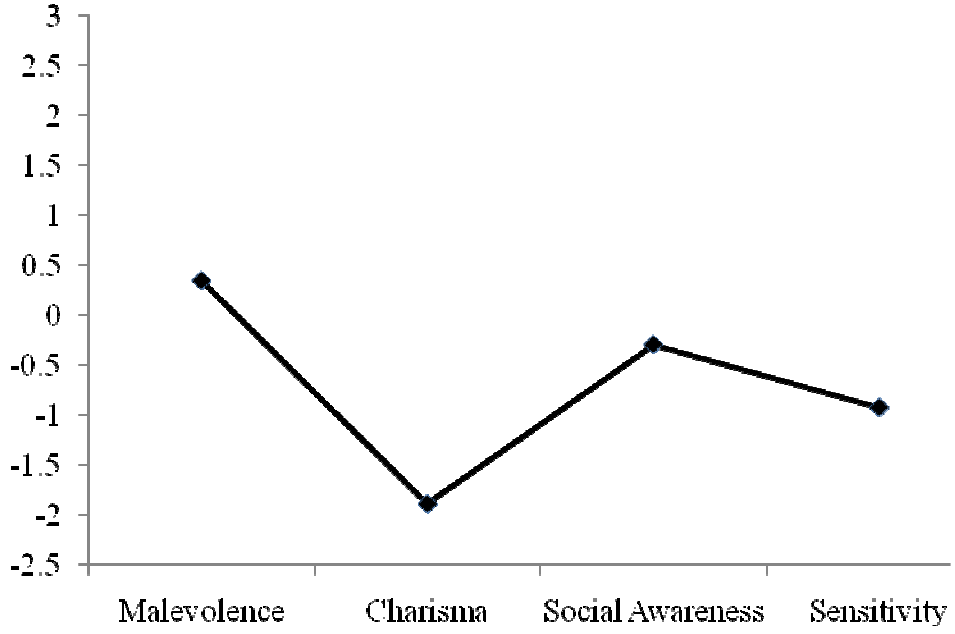

Figure 4.4. Standardized scores for explicit ILTs dimensions for Cluster Profile 4.

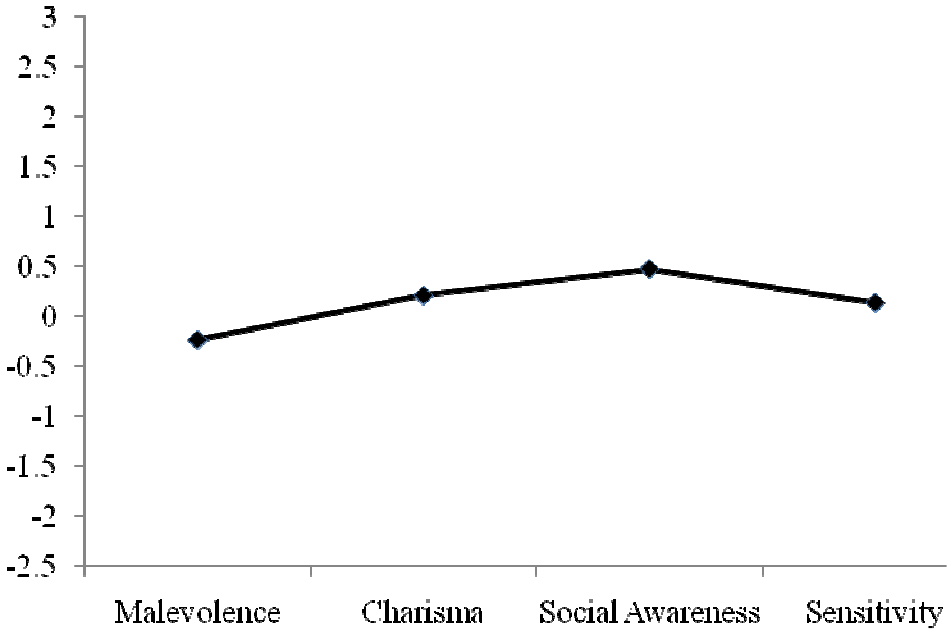

Figure 4.5. Standardized scores for explicit ILTs dimensions for Cluster Profile 5.

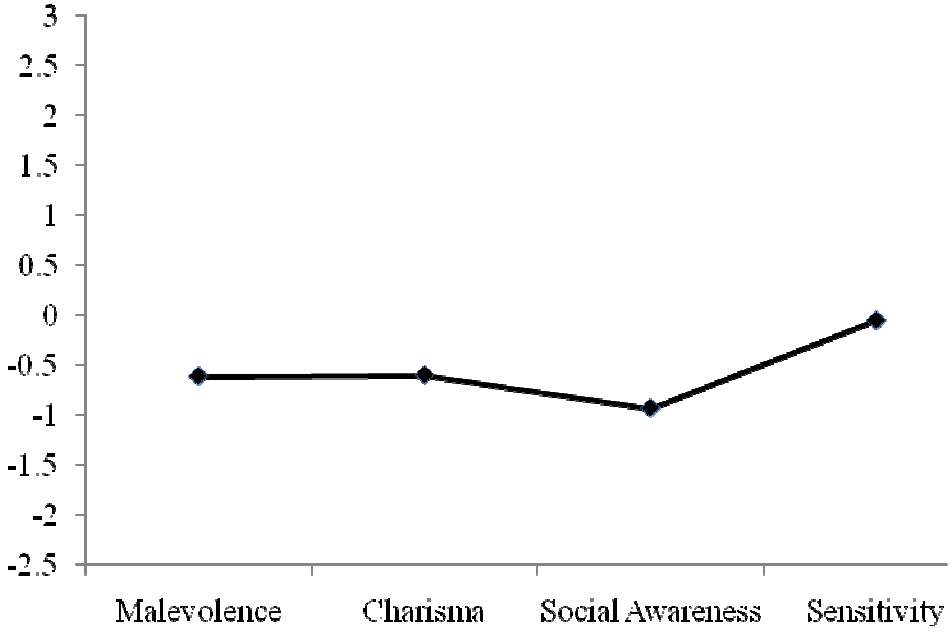

Figure 4.6. Standardized scores for explicit ILTs dimensions for Cluster Profile 6.

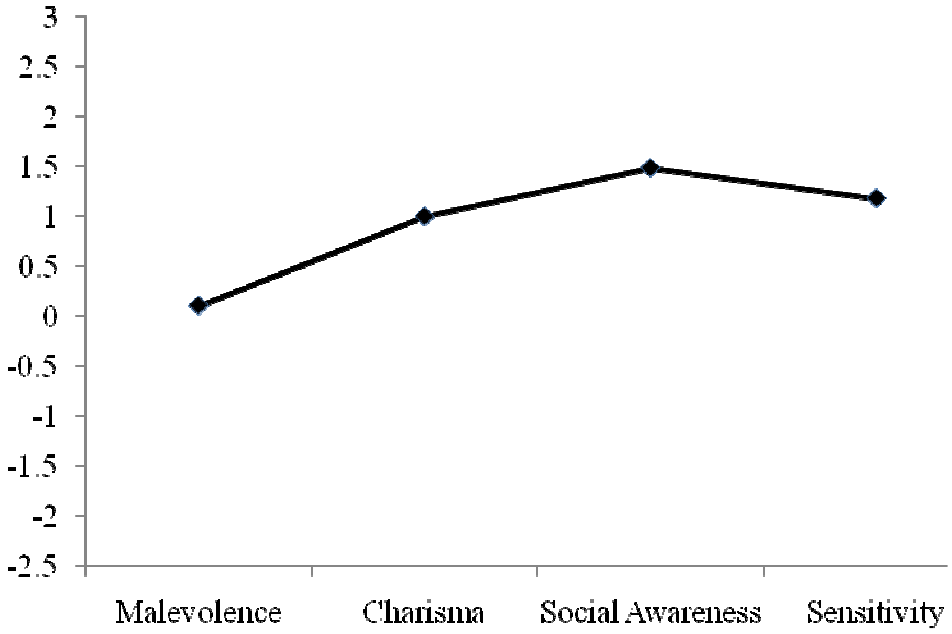

Figure 4.7. Standardized scores for explicit ILTs dimensions for Cluster Profile 7.

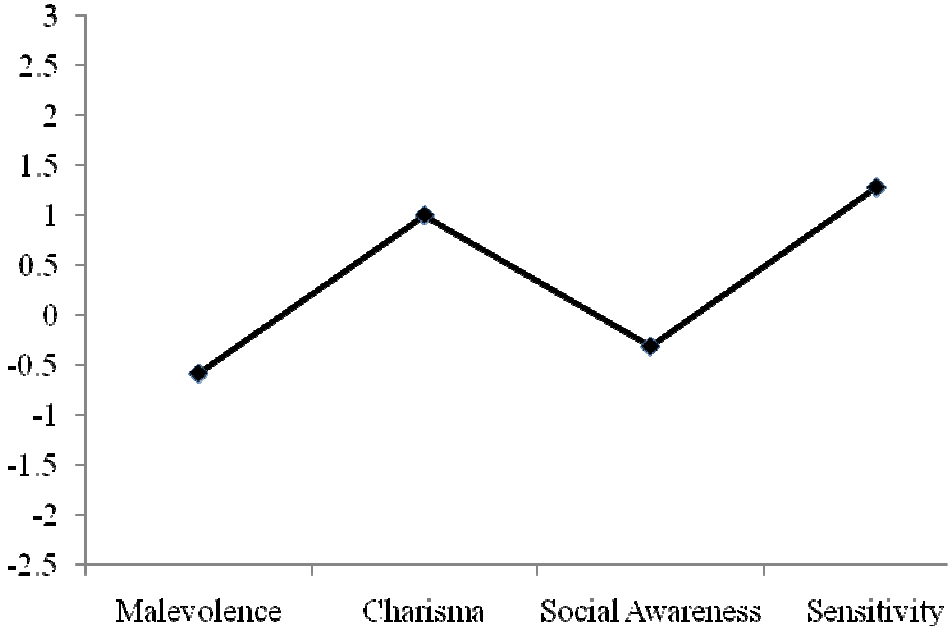

Figure 4.8. Standardized scores for explicit ILTs dimensions for Cluster Profile 8.

Implicit ILTs measures using response accuracy.

ILTs profiles. As noted above, when the accuracy index of association strength was employed, only Sensitivity, Dedication and Intelligence traits were associated with the leader-non-leader distinction. Cluster analysis was conducted on these three variables in a subset of the sample in which these three GNAT scores were not missing. A number of 4 (2.8 %) cases were identified as outliers and removed from further analysis. The final sample of 137 participants remained for clustering. Sudden drops in ESS increment occurred in several locations in the ESS plot (Figure 5). However, a 7-cluster solution appeared to be superior to a 9-cluster, 11-cluster, or 13-cluster solution, in reference to the criteria for the optimal number of clusters noted earlier. The 7-cluster solution explained 67.29% of the ESS and showed high cluster homogeneity (i.e., six out of seven homogeneity coefficients were below 1.00) and between-cluster differences. The final cluster profiles, cluster sizes, homogeneity coefficients, and cluster means and standard deviations are presented in Table 12.

In MANOVA, given unequal sample sizes of clusters and heterogeneity of variance-covariance matrices (Box's M test was significant at $p < .001$), Pillai's Trace statistic indicated that there was an overall effect of cluster profile membership on the implicit ILTs measures, omnibus $F(18, 390) = 43.18$, $p < .01$, $\eta^2 = .67$. Follow-up univariate ANOVA revealed significant differences in the Dedication GNAT scores among profiles [$F(6, 130) = 54.76$, $p < .01$]. Because the assumption of homogeneity of variance was not met for Sensitivity and Intelligence GNAT scores, Welch testing was conducted instead. Results showed significant differences for Sensitivity (Welch statistic = 38.24, $p < .01$) and

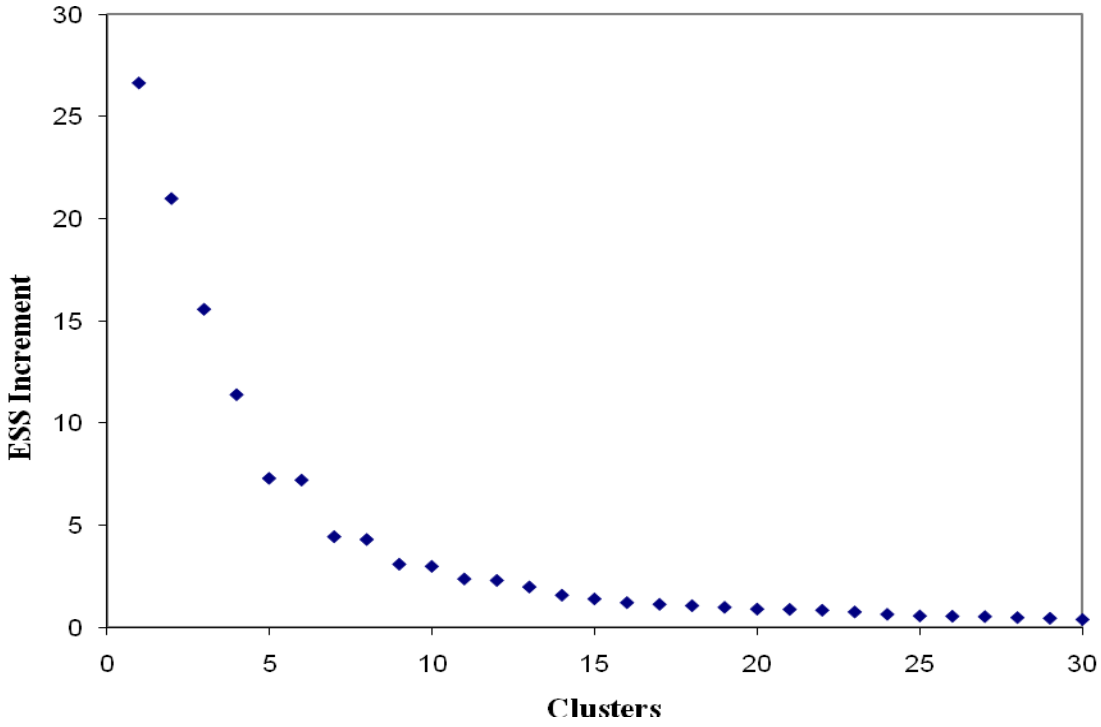

Figure 5. Error Sum of Squares for implicit ILTs measures based on the accuracy index. Initial cluster analysis suggests a 7-cluster solution.

Intelligence (Welch statistic = 51.59, $p < .01$). Bonferroni or Games-Howell post hoc tests indicated most of profile scores in the three GNATs were significantly different from one another ($p < .05$).

Differences between ILTs profiles. Standardized variable scores for seven clusters were graphed in Figure 6. Examination of the line graph suggested that all ILTs profiles differed from each other in shape, level, or both. Individual cluster profile line graphs are presented in Figures 7.1 through 7.7.

Table 12. *Final Mean (SD) and Homogeneity Coefficients for ILT Cluster Profiles of the Implicit ILTs Measures Scored by Response Accuracy (n=137)*

Profile	*n*	HC	Sensitivity	Dedication	Intelligence
1	28	0.33	-0.46 (0.41)	0.18 (0.30)	0.30 (0.33)
2	15	1.12	-0.85 (0.79)	-1.33 (0.65)	-0.32 (0.47)
3	24	0.84	-0.98 (0.57)	0.74 (0.48)	1.24 (0.62)
4	21	0.51	0.55 (0.40)	-0.15 (0.47)	-0.51 (0.44)
5	8	0.64	0.30 (0.62)	-0.70 (0.47)	1.41 (0.33)
6	19	0.79	0.78 (0.49)	1.15 (0.44)	0.35 (0.68)
7	22	0.77	-0.85 (0.61)	0.74 (0.56)	-0.61 (0.43)
Overall	137	-	-0.28 (0.86)	0.24 (0.88)	0.20 (0.86)
Profile comparisons			Welch = 38.24**	$F(6, 130)$ = 54.76**	Welch = 51.59**

Note. Standard deviations are presented in (parentheses) below each mean. HC = homogeneity coefficient (cluster similarity index), where lower values (less than 1) indicate better similarity among members. The 7-cluster solution explained 67.29% of the error sum of squares (ESS).

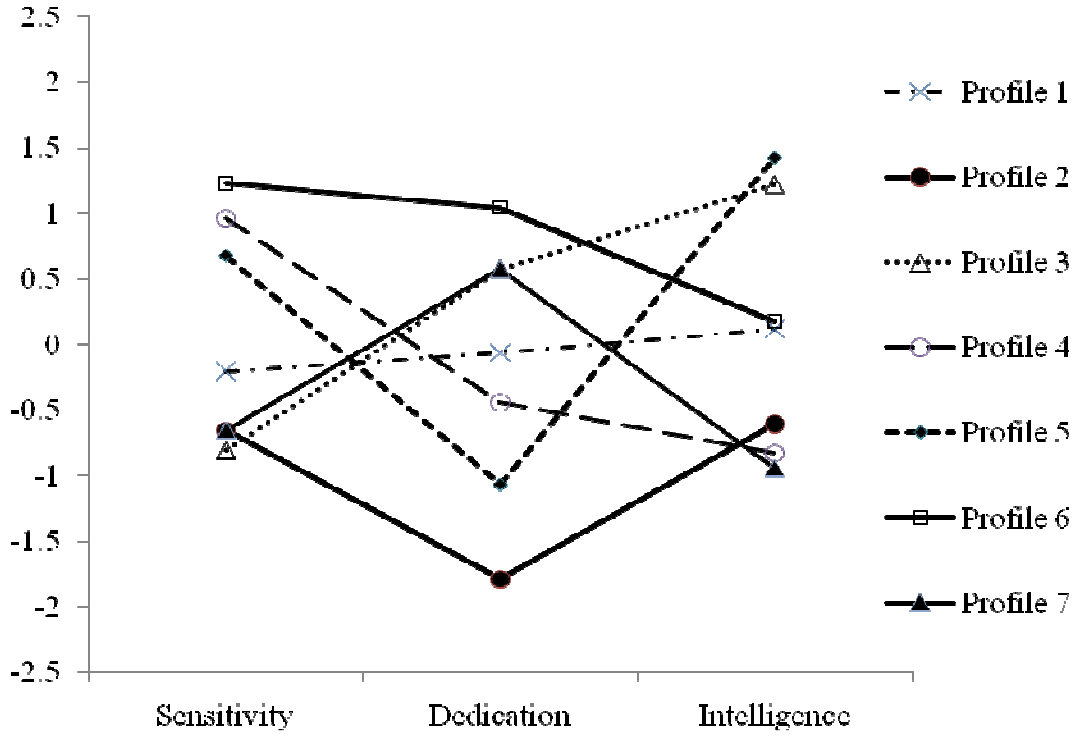

Figure 6. Standardized scores for implicit ILTs measures based on the accuracy index, by cluster profile.

Profile 1 (Figure 7.1). This pattern of GNAT scores displayed an image of a leader who was average on the Dedication and Intelligence traits but less sensitive to others than average.

Profile 2 (Figure 7.2). The members of this cluster profile preferred a leader below average on all the three ILTs variables. The Dedication trait in a leader was less valued by this group than by all other clusters.

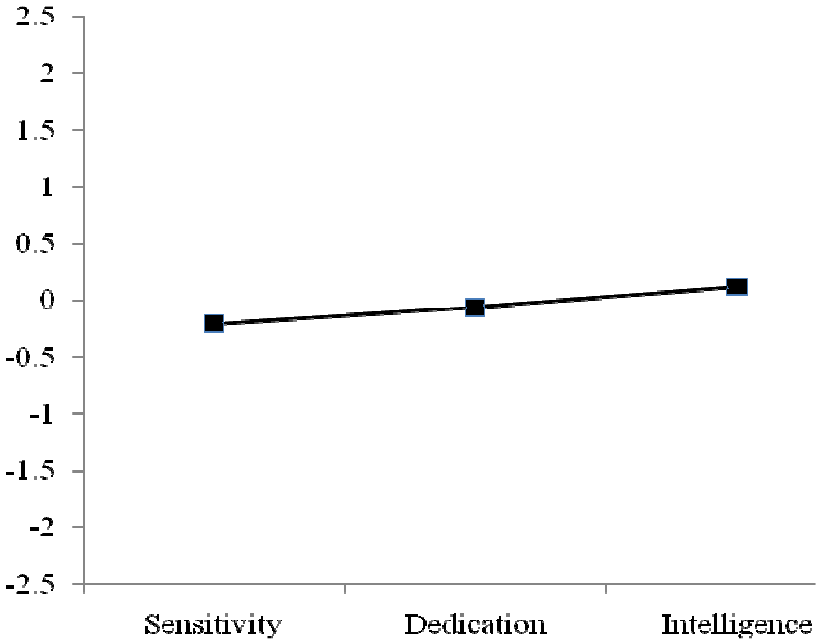

Figure 7.1. Standardized scores for implicit ILTs measures based on the accuracy index for Cluster Profile 1.

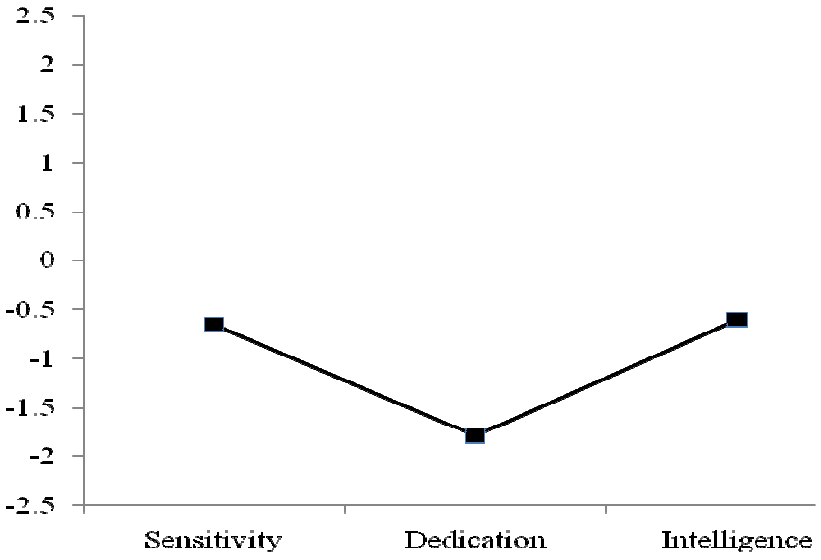

Figure 7.2. Standardized scores for implicit ILTs measures based on the accuracy index for Cluster Profile 2.

Profile 3 (Figure 7.3). Respondents with this pattern had an image of a leader with above average Dedication and Intelligence but below average in interpersonal sensitivity. This group tended to value both the nurture aspect of leader attributes, such as efforts, and the nature aspect, such as intelligence, in comparison to all other profiles.

Profile 4 (Figure 7.4). Compared to all other profiles, members in Profile 4 were more likely to perceive leaders as individuals who were more sensitive to others but less hard-working and intelligent than average as leaders.

Profile 5 (Figure 7.5). This cluster consisted of only eight members. Individuals in this profile associated leaders with being above average on the Sensitivity and Intelligence traits. Hard-working and goal orientation were not as important to this group as to other groups in leader identification.

Profile 6 (Figure 7.6). This profile was unique in comparison to the six other profiles in that it was the only cluster in which all three scores were above average. The emphasis on Sensitivity, Dedication, and Intelligence traits in the leader-non-leader distinction was consistent with conventional ILT studies (e.g., Offermann et al.).

Profile 7 (Figure 7.7). The members in this profile preferred a leader who was below average in Sensitivity and Intelligence. However, this group expected a leader to be above average on Dedication, suggesting their stronger emphasis on the nurture aspect of leader attributes than that for other profile groups.

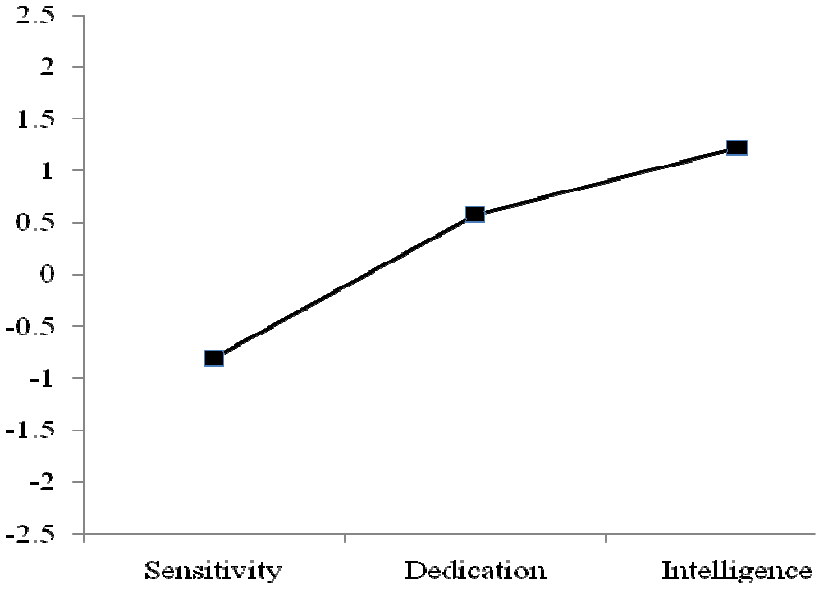

Figure 7.3. Standardized scores for implicit ILTs measures based on the accuracy index for Cluster Profile 3.

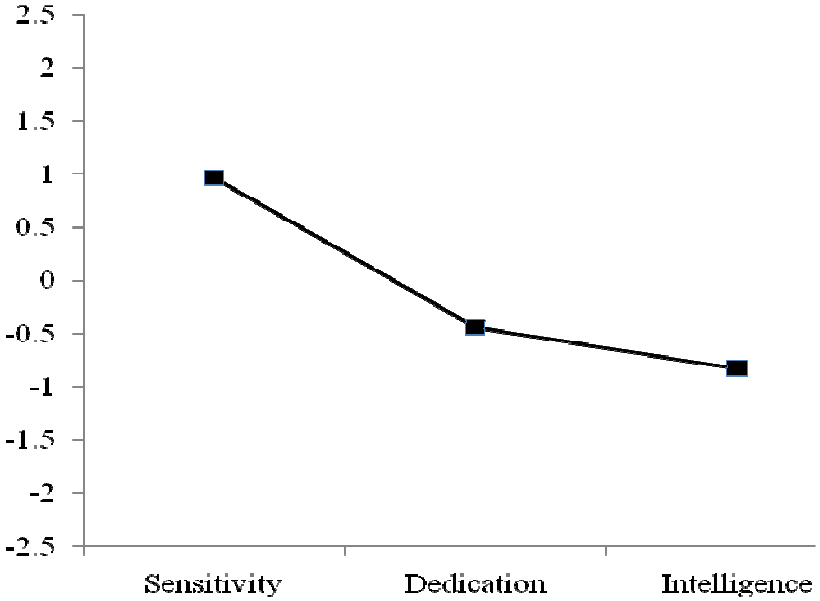

Figure 7.4. Standardized scores for implicit ILTs measures based on the accuracy index for Cluster Profile 4.

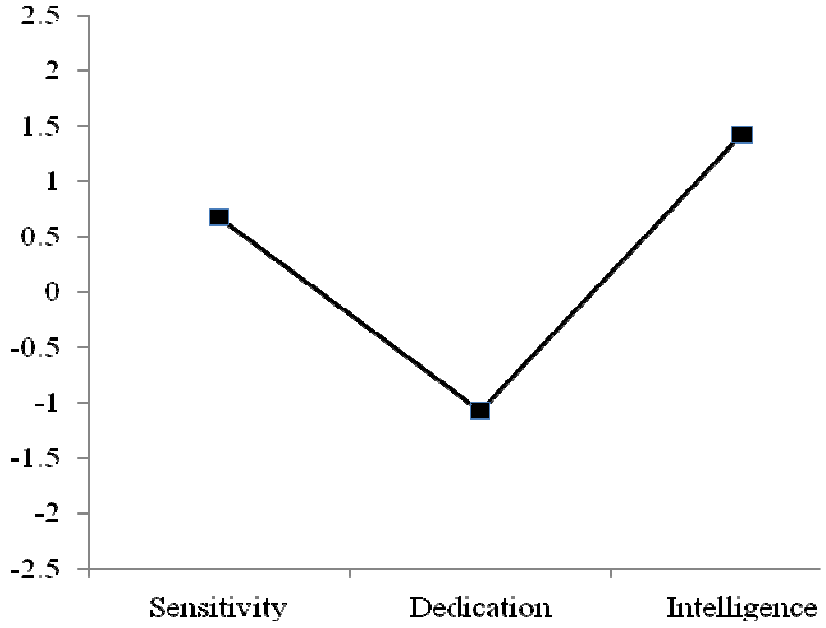

Figure 7.5. Standardized scores for implicit ILTs measures based on the accuracy index for Cluster Profile 5.

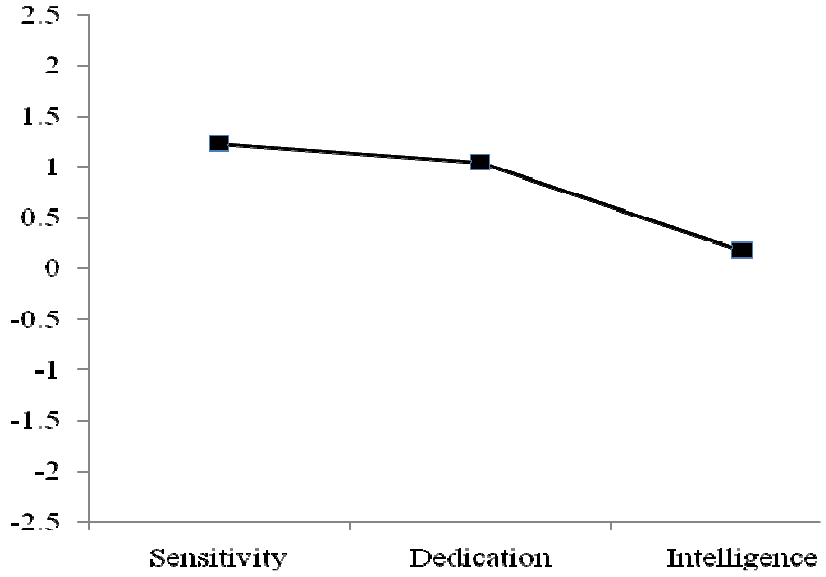

Figure 7.8. Standardized scores for implicit ILTs measures based on the accuracy index for Cluster Profile 6.

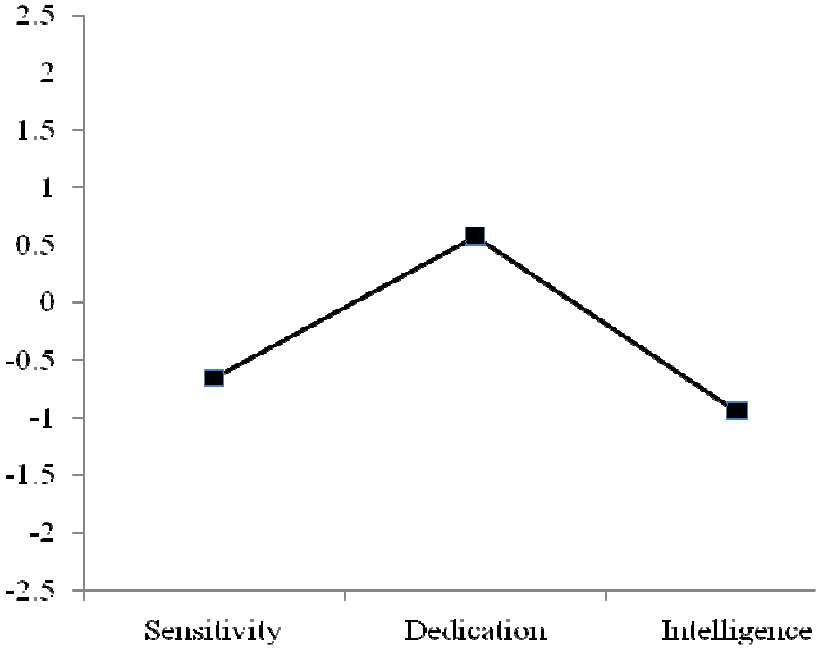

Figure 7.7. Standardized scores for implicit ILTs measures based on the accuracy index for Cluster Profile 7.

Implicit ILTs measures using response latency.

ILTs profiles. Using the latency index as a measure of ILTs under spontaneous information processing, individuals distinguished leaders from non-leaders based on the Dedication, Intelligence, Charisma, and Tyranny traits. The GNAT scores for these four traits were used to cluster a sample of 98 participants, after removing 7 (6.7 %) outliers. Based on the ESS plot (Figure 8), solutions with 7, 8, 9, 10, and 14 clusters were examined. An 8-cluster solution was suggested to be superior in maximizing cluster homogeneity and between-cluster differences. In this solution, 67.23% of ESS was explained, and all homogeneity coefficients were less than one with one exception of 1.18 for Profile 1. The

final cluster profiles, cluster sizes, homogeneity coefficients, and cluster means and standard deviations are presented in Table 13.

In MANOVA, Wilks' lambda indicated that there was an overall effect of cluster profile membership on the implicit ILTs measures, omnibus $F(28, 315.11) = 26.71$, $p < .01$, $\eta^2 = .67$. Follow-up univariate ANOVAs were examined for Dedication, Charisma, and Tyranny scores, and significant differences in these three GNAT scores among profiles were revealed. When using the Roy-Bargman stepdown procedure to account for related dependent variables, significant differences were also found for Dedication [$F(7, 90) = 22.63$, $p < .01$], Charisma [$F(7, 89) = 22.69$, $p < .01$], and Tyranny [$F(7, 88) = 36.47$, $p < .01$]. Welch statistic was reported for Intelligence due to its heterogeneity of variance, and results indicated profiles differed in the Intelligence scores (Welch statistic = 12.26, $p < .01$). Bonferroni or Games-Howell post hoc tests indicated the four GNAT scores were significantly different among profile groups ($p < .05$).

Differences between ILTs profiles. Standardized variable scores for eight clusters were graphed in Figure 9. Examination of the line graph suggested that all ILTs profiles differed from each other in shape, level, or both. Individual cluster profile line graphs are presented in Figures 10.1 through 10.8.

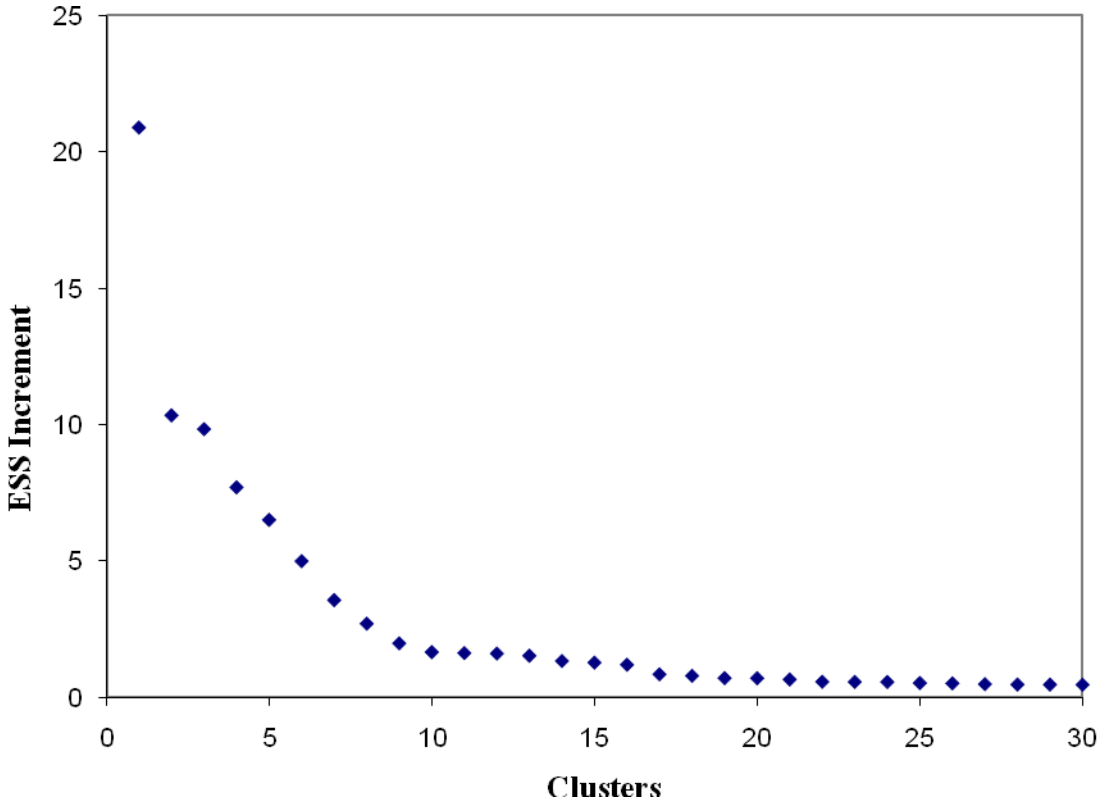

Figure 8. Error Sum of Squares for implicit ILTs measures based on the latency index. Initial cluster analysis suggests an 8-cluster solution.

Profile 1 (Figure 10.1). This group expected a leader to be above average in Dedication and Charisma, average in Intelligence, and below average in Tyranny. This profile had the highest score on the Charisma traits among all the profiles. This image of a leader appeared to be close to leadership theories that advocate transformational leadership. However, only six participants were classified into this cluster profile.

Table 13. *Final Mean (SD) and Homogeneity Coefficients for ILT Cluster Profiles of the Implicit ILTs Measures Scored by Response Latency (n=98)*

Profile	*n*	HC	Dedication	Intelligence	Charisma	Tyranny
1	6	1.18	0.60 (0.21)	0.17 (0.36)	0.72 (0.19)	-0.37 (0.16)
2	8	0.75	0.14 (0.17)	-0.11 (0.12)	-0.14 (0.26)	-0.57 (0.20)
3	16	0.68	0.42 (0.23)	-0.10 (0.17)	0.06 (0.17)	-0.05 (0.19)
4	11	0.52	-0.18 (0.23)	0.19 (0.15)	-0.30 (0.11)	0.17 (0.17)
5	12	0.97	0.49 (0.30)	0.42 (0.22)	0.33 (0.18)	0.44 (0.21)
6	15	0.80	-0.28 (0.21)	-0.07 (0.24)	0.19 (0.16)	-0.05 (0.21)
7	15	0.57	0.20 (0.23)	0.52 (0.14)	-0.04 (0.16)	-0.07 (0.17)
8	15	0.51	0.12 (0.16)	-0.05 (0.15)	-0.04 (0.18)	0.45 (0.16)
Overall	98	-	0.16 (0.36)	0.12 (0.31)	0.07 (0.30)	0.05 (0.35)
Profile comparisons			$F(7, 90)$ = 22.63**	Welch = 12.26**	$F(7, 90)$ = 26.72**	$F(7, 90)$ = 37.19**
Stepdown *F*			22.63**	-	22.69**	36.47**

Note. Standard deviations are presented in (parentheses) below each mean. HC = homogeneity coefficient (cluster similarity index), where lower values (less than 1) indicate better similarity among members. The 8-cluster solution explained 67.23% of the error sum of squares (ESS).

Profile 2 (Figure 10.2). Compared to all other profiles, this pattern revealed all four traits to be below average, indicating a preference for a leader low in Dedication, Intelligence, Charisma, and Tyranny. Particularly, Tyranny for this profile was the lowest among all the profiles.

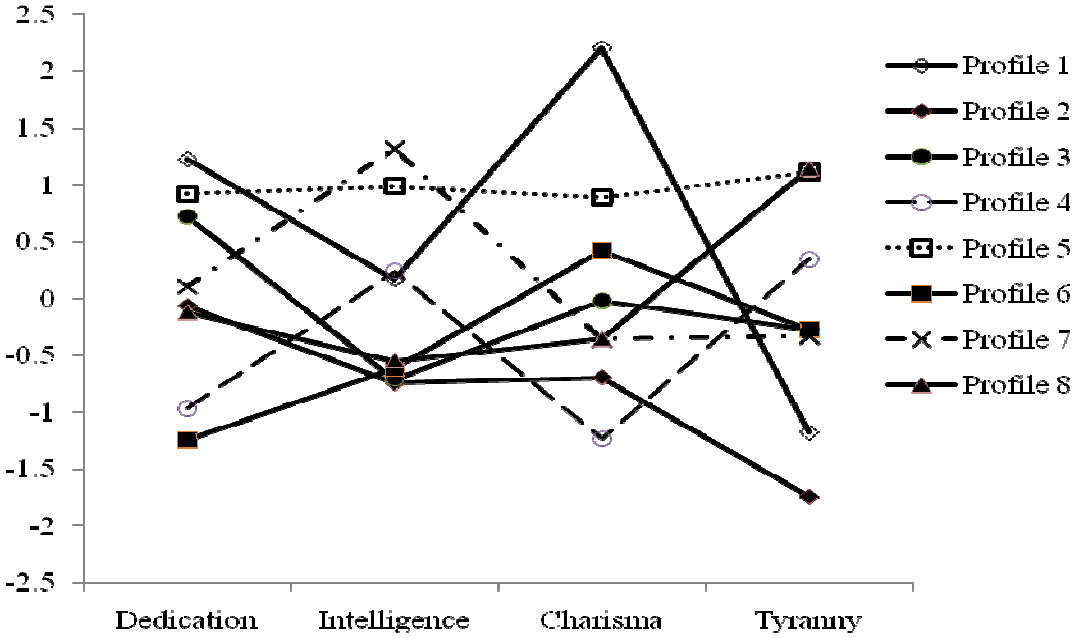

Figure 9. Standardized scores for implicit ILTs measures based on the latency index, by cluster profile.

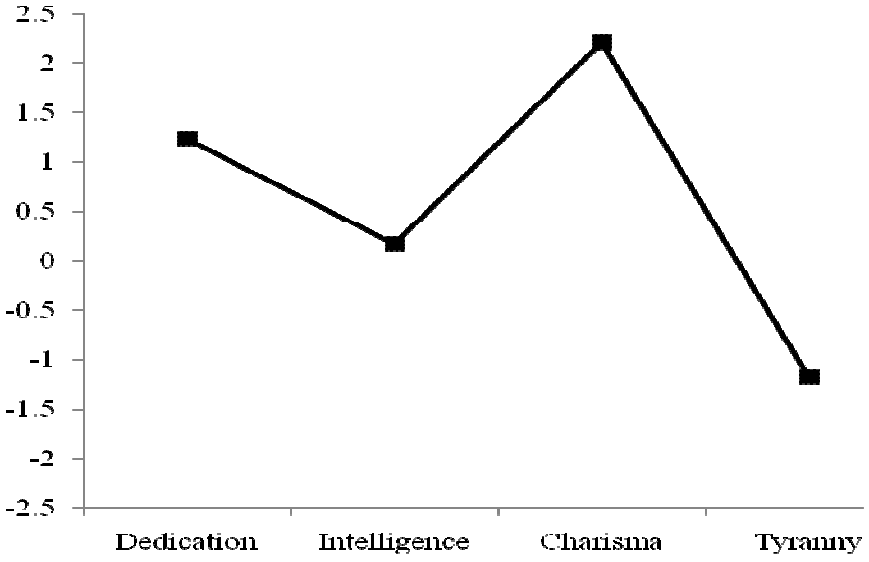

Figure 10.1. Standardized scores for implicit ILTs measures based on the latency index for Cluster Profile 1.

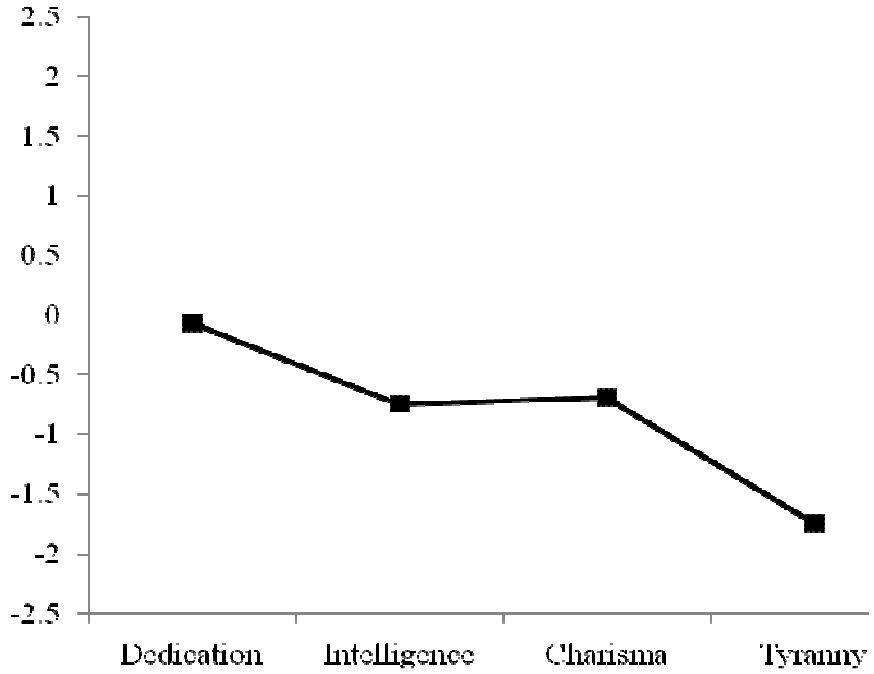

Figure 10. 2. Standardized scores for implicit ILTs measures based on the latency index for Cluster Profile 2.

Profile 3 (Figure 10.3). The members in Profile 3 tended to value the Dedication traits more than average in leader identification. However, their leaders were expected to be below average on Intelligence, Charisma, and Tyranny.

Profile 4 (Figure 10.4). This profile was unique from the other profiles in that it was the only cluster in which both Dedication and Charisma traits were not perceived to be as important in a leader as they were for other profile groups. Also, this group valued a leader with slightly above average Intelligence and Tyranny.

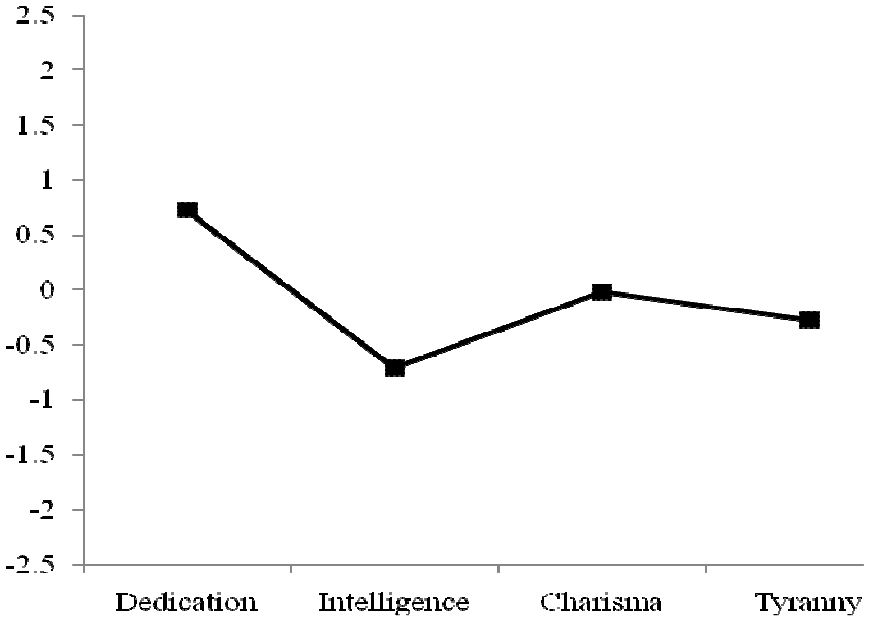

Figure 10.3. Standardized scores for implicit ILTs measures based on the latency index for Cluster Profile 3.

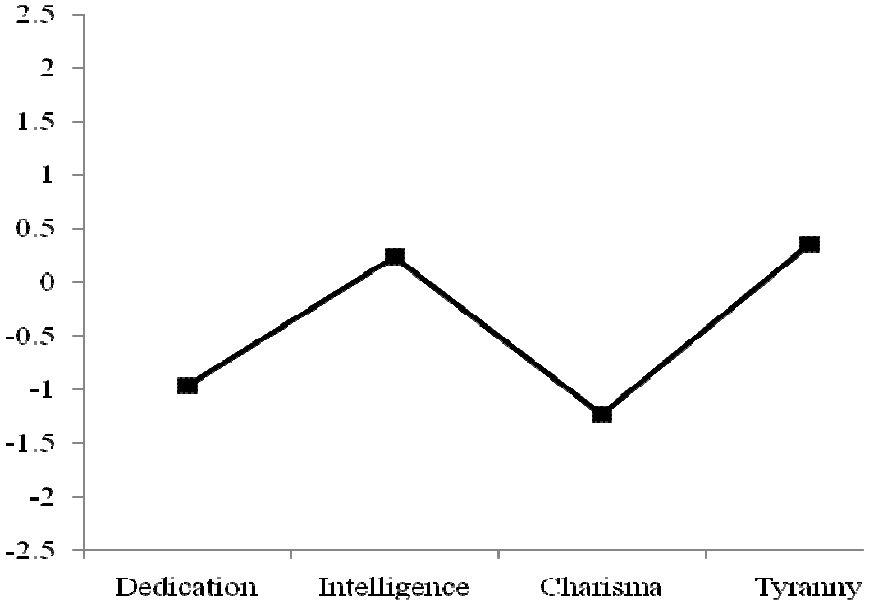

Figure 10.4. Standardized scores for implicit ILTs measures based on the latency index for Cluster Profile 4.

Profile 5 (Figure 10.5). Different from other profiles, the members of this group endorsed a preference for a leader who was above average on all four traits. Consistent with leadership theories that advocate transformational leadership, charismatic traits were important in a leader. Being dedicated and intelligent also contributed to leader identification. Surprisingly, above average in Tyranny was also important in a leader.

Profile 6 (Figure 10.6). This group expected a leader to be above average in Charisma but below average in Dedication, Intelligence, and Tyranny. Compared to other profile groups, the possession of charisma-related traits increased the likelihood of being perceived as a leader.

Profile 7 (Figure 10.7). The members of this group placed the greatest emphasis on one's intelligence in leader identification, in comparison to all other profiles. Being average in Dedication and slightly lower in Charisma and Tyranny traits were their preferred leader profiles. It seemed that the nature aspect of an individual, the intelligence in this case, was valued more than the nurture aspect, hardworking.

Profile 8 (Figure 10.8). This profile was similar to Profile 2 in the emphasis on below average Dedication, Intelligence, and Charisma. However, these two profiles differed in the way that the members in Profile 8 considered being tyrannical as the trait that was expected of a leader.

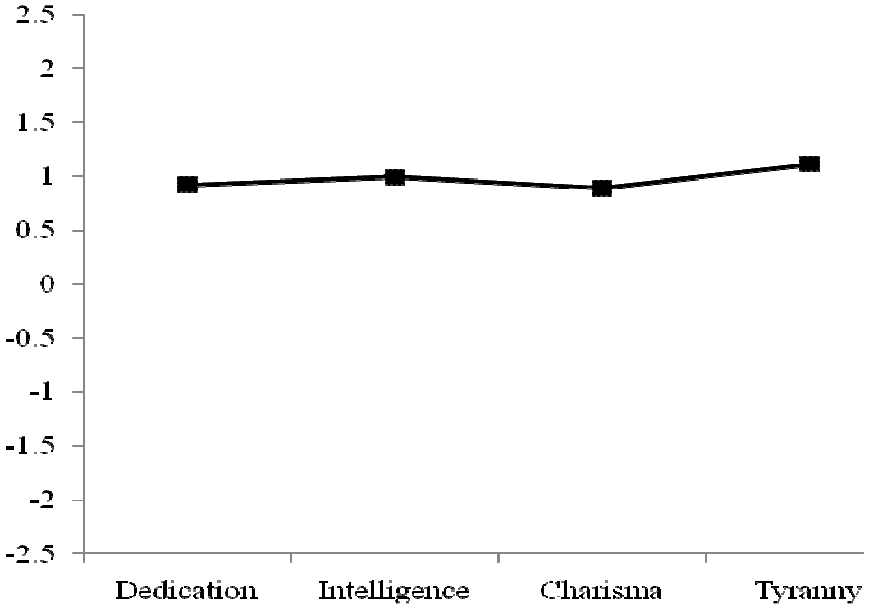

Figure 10.5. Standardized scores for implicit ILTs measures based on the latency index for Cluster Profile 5.

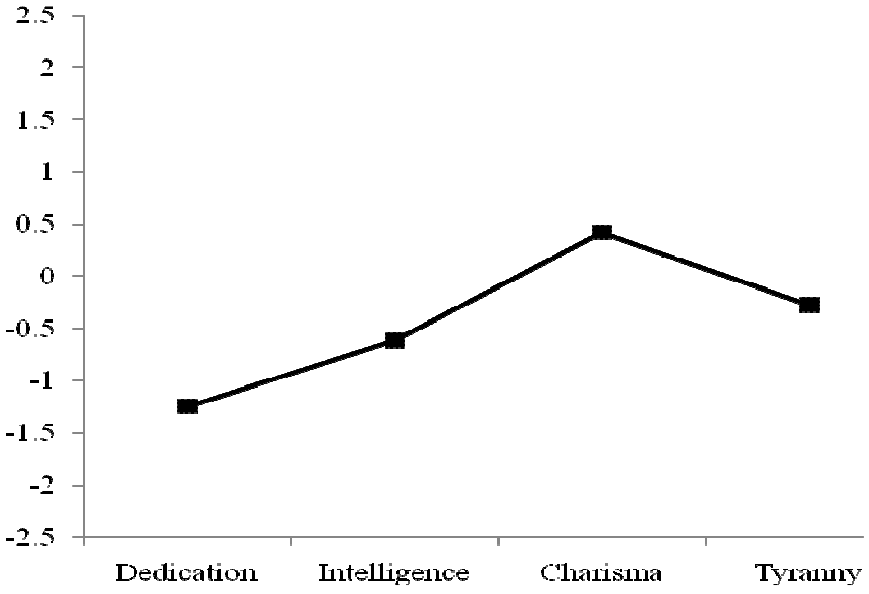

Figure 10.6. Standardized scores for implicit ILTs measures based on the latency index for Cluster Profile 6.

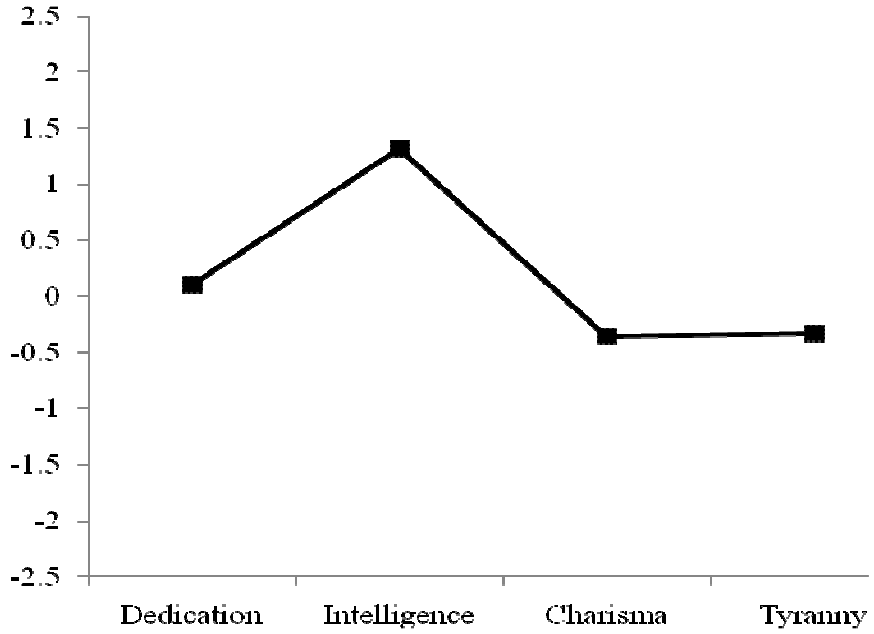

Figure 10.7. Standardized scores for implicit ILTs measures based on the latency index for Cluster Profile 7.

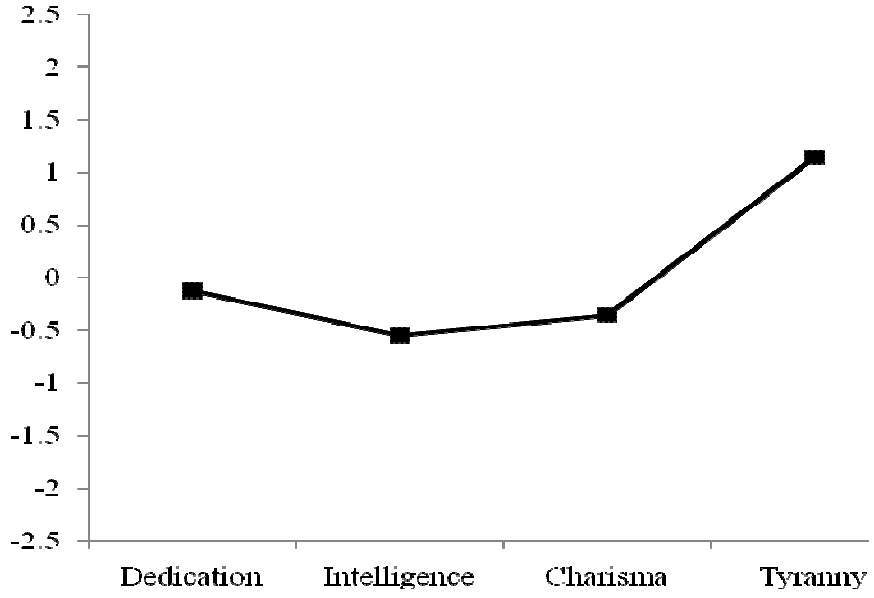

Figure 10.8. Standardized scores for implicit ILTs measures based on the latency index for Cluster Profile 8.

Relationships between the explicit ILTs profiles and leadership perceptions. In order to analyze whether the different patterns in the ILTs cluster solution corresponded to differences in the overall LBDQ ratings, the overall charismatic leadership, or the perception of leader influence, three separate ANOVAs were performed on the overall rating of each of these measures. The Levene's test found that the assumption of homogeneity of variance was met in these three overall measures. ANOVA results showed eight ILTs profiles did not differ in the overall LBDQ ratings, $F(7, 192) = 1.16$, $p = .33$, $\eta^2 = .04$, the overall charismatic leadership ratings, $F(7, 192) = 1.34$, $p = .23$, $\eta^2 = .05$, and the ratings of perceived leader influence, $F(7, 192) = 0.71$, $p = .66$, $\eta^2 = .03$. Because gender was related to the overall LBDQ ratings and perceived leader influence, analysis of covariance (ANCOVA) was conducted for each of the two measures to control for gender effects. The result of no mean difference in leadership ratings among ILTs profiles remained in the ANCOVA.

Although cluster profiles were not different in the three overall leadership ratings, differences at the subscale level might have existed. Two separate MANOVAs were performed on the subscales of the LBDQ and the CKS. Results of the Box's M test demonstrated that the assumption of the homogeneity of variance-covariance matrices was met for dependent variables. Wilks' lambda statistic indicated no overall effect of cluster profile membership on the Consideration and Initiating Structure ratings, omnibus $F(14, 382) = 1.52$, $p = .10$, $\eta^2 = .05$. The same result was also found in the set of five charismatic leadership subscales, omnibus $F(35, 793.27) = 1.21$, $p = .19$, $\eta^2 = .04$. Given that the ratings on Consideration in the LBDQ and on Sensitivity to Member Needs in the CKS were

significantly related to gender, multivariate analysis of covariance (MANCOVA) was separately conducted for two sets of dependent variables to test whether differences existed between cluster profiles in leadership perceptions when gender effects were accounted for. Results indicated no significant difference in both sets of leadership subscales among the eight ILTs profiles. Table 14 shows mean ratings of leadership perception for ILTs profiles based on prototypicality ratings.

Corresponding to the analyses in the variable-oriented approach, relationships between ILTs and leadership perceptions were also examined when subordinates' characteristics and perceived leader fit were held constant. As shown in Table 3, among four subordinates' characteristics only gender was correlated with leadership ratings. As a result, the effects of gender and perceived leader fit were controlled for in testing group differences in leadership perceptions. Results showed that ILTs profiles did not differ in the overall LBDQ ratings, $F(7, 190) = 1.83$, $p = .08$, $\eta^2 = .06$, and perceived leader influence ratings, $F(7, 190) = 0.64$, $p = .72$, $\eta^2 = .02$. In contrast, there were group differences in the overall charismatic leadership ratings, $F(7, 190) = 2.37$, $p = .02$, $\eta^2 = .08$. However, Bonferroni post hoc tests did not show any difference between profiles in the overall ratings of leader charisma.

To test group differences in the subscales of leadership perception controlling for gender and perceived leader fit, Wilks' lambda statistic indicated an overall effect of cluster profile membership on the Consideration and Initiating Structure ratings, omnibus $F(14, 378) = 1.76$, $p = .04$, $\eta^2 = .06$. Follow-up univariate ANCOVAs revealed significant differences

Table 14. *Mean Differences in Leadership Perceptions for ILTs Profiles Based on Prototypical Ratings (n = 200)*

Profile	Leadership Perception										
	Overall LBDQ	Consideration	Initiating Structure	Overall CL	SVA	SE	SMN	PR	UB	Leader Influence	Perceived Leader Fit
1	3.70 (0.58)	3.73 (0.73)	3.64 (0.68)	3.39 (0.85)	3.43 (1.13)	3.78 (0.91)	3.80 (0.91)	2.70 (1.00)	3.07 (1.20)	4.07 (0.62)	3.40 (0.84)
2	3.47 (0.53)	3.42 (0.60)	3.57 (0.78)	3.33 (0.80)	3.52 (0.95)	3.14 (0.82)	3.48 (1.00)	3.26 (0.78)	3.04 (0.92)	3.63 (0.79)	3.44 (1.01)
3	3.33 (0.54)	3.30 (0.82)	3.38 (0.62)	2.71 (0.84)	2.72 (1.03)	3.14 (0.95)	3.05 (1.13)	2.29 (1.09)	2.17 (1.09)	3.40 (1.10)	2.97 (1.27)
4	3.16 (0.69)	3.11 (0.93)	3.27 (0.71)	2.67 (0.94)	2.67 (1.07)	3.02 (0.91)	2.83 (1.22)	2.23 (1.15)	2.50 (0.90)	3.48 (0.93)	3.00 (1.32)
5	3.50 (0.58)	3.51 (0.75)	3.49 (0.55)	3.02 (0.84)	3.12 (0.98)	3.23 (0.91)	3.38 (1.09)	2.59 (1.00)	2.61 (1.06)	3.64 (0.99)	3.23 (1.18)
6	3.41 (0.62)	3.55 (0.74)	3.15a (0.65)	2.86 (0.79)	2.89 (0.97)	3.16 (0.84)	3.40 (1.16)	2.33 (0.83)	2.40 (0.87)	3.69 (0.91)	3.27 (1.18)
7	3.63 (0.76)	3.57 (0.88)	3.76a (0.75)	3.12 (1.05)	3.18 (1.30)	3.51 (1.08)	3.41 (1.18)	2.75 (1.19)	2.52 (1.14)	3.83 (1.12)	3.35 (1.40)
8	3.49 (0.81)	3.53 (0.96)	3.44 (0.99)	3.02 (1.09)	3.13 (1.38)	3.29 (1.28)	3.32 (1.33)	2.33 (1.11)	2.76 (1.11)	3.76 (1.21)	3.00 (1.50)
Overall	3.45 (0.65)	3.47 (0.81)	3.42 (0.71)	2.96 (0.90)	3.02 (1.10)	3.25 (0.97)	3.31 (1.15)	2.48 (1.03)	2.54 (1.04)	3.66 (1.00)	3.19 (1.24)

Table 14. *Continued*

Profile	Leadership Perception										Perceived Leader Fit
	Overall LBDQ	Consideration	Initiating Structure	Overall CL	SVA	SE	SMN	PR	UB	Leader Influence	
Profile Comparisons	$F(7, 192) = 1.16$	omnibus $F(14, 382) = 1.52$		$F(7, 192) = 1.34$	omnibus $F(35, 793.27) = 1.21$					$F(7, 192) = 0.71$	$F(7, 192) = 0.44$
Profile Comparisons Controlling for Gender	$F(7, 191) = 1.00$	omnibus $F(14, 380) = 1.41$		-	omnibus $F(35, 789.07) = 1.13$					$F(7, 191) = 0.58$	-
Profile Comparisons Controlling for Gender and Perceived Leader Fit	$F(7, 190) = 1.83$	omnibus $F(14, 378) = 1.76$*; F(7, 190) = 1.23 for Consideration; F(7, 190) = 2.29* for Initiating Structure		$F(7, 190) = 2.37$*	omnibus $F(35, 784.86) = 1.29$					$F(7, 190) = 0.64$	-

Note. Standard deviations are presented in (parentheses) below each mean. LBDQ = Leader Behavior Description Questionnaire. CL = Charismatic Leadership; SVA = Strategic Vision and Articulation; SE = Sensitivity to the Environment; SMN = Sensitivity to Member Needs; PR = Personal Risk; UB = Unconventional Behavior.

in the Initiating Structure ratings although the homogeneity of variance was not found in Initiating Structure ratings. If Bonferroni post hoc tests were performed, results would indicate members in Profile 7 tended to give higher ratings on Initiating Structure than those in Profile 6. In contrast, there were no group differences in the five subscales of charismatic leadership as a whole, omnibus $F(35, 784.86) = 1.29$, $p = .12$, $\eta^2 = .05$. In summary, patterns of ILTs ratings did not have impact on leadership ratings, even when the covariate effects were controlled for. This finding suggested subordinates' ILTs were not related to their leadership perceptions within the person-oriented framework.

Relationships between the implicit ILTs profiles and leadership perceptions.

Use of the accuracy index. Three separate ANOVAs were conducted to test profile differences in the overall rating of the LBDQ, charismatic leadership, and perceived leader influence. The Levene's test found that the assumption of homogeneity of variance was met in these four overall measures. ANOVA results indicated that the seven ILTs profiles did not differ in the overall LBDQ ratings, $F(6, 130) = 1.59$, $p = .16$, $\eta^2 = .07$, the overall charismatic leadership ratings, $F(6, 130) = 0.82$, $p = .55$, $\eta^2 = .04$, and the ratings of perceived leader influence, $F(6, 130) = 0.47$, $p = .83$, $\eta^2 = .02$. Due to significant relationships of gender with the overall LBDQ ratings and perceived leader influence, ANCOVA was conducted for each of the two measures to control for gender effects. The same finding of no overall effect of cluster profile memberships were found in the ANCOVA results.

Differences between cluster profiles on subscales of the LBDQ and CKS were also examined using MANOVA separately for each. Wilks' lambda indicated no overall effect of

cluster profile membership on the Consideration and Initiating Structure ratings, omnibus $F(12, 258) = 1.21$, $p = .28$, $\eta^2 = .05$. The same result was also found in the set of five charismatic leadership subscales, omnibus $F(30, 506) = 1.13$, $p = .29$, $\eta^2 = .05$. Given that the ratings on Consideration in the LBDQ scale and on Sensitivity to Member Needs in the CKS were significantly related to gender, MANCOVAs were separately conducted for two sets of dependent variables to examine the relationships between ILTs and leadership perceptions when gender effects were accounted for. Results indicated there were no significant differences in both sets of leadership subscales among seven ILTs profiles. Table 15 shows mean ratings in leadership measures for accuracy-based ILTs profiles.

Relationships between ILTs and leadership perceptions were also examined when subordinates' gender and perceived leader fit were held constant. ANCOVA results showed that cluster profiles did not differ in the overall LBDQ ratings, $F(6, 128) = 1.72$, $p = .123$, $\eta^2 = .07$, the overall charismatic leadership ratings, $F(6, 128) = 2.09$, $p = .06$, $\eta^2 = .09$, and perceived leader influence, $F(6, 128) = 0.32$, $p = .93$, $\eta^2 = .02$.

To test group differences in the leadership subscales controlling for perceived leader fit and gender, Wilks' lambda statistic indicated no group differences in the two subscales of the LBDQ, omnibus $F(12, 254) = 1.21$, $p = .28$, $\eta^2 = .05$, and the five subscales of charismatic leadership as a whole, omnibus $F(30, 498) = 1.23$, $p = .19$, $\eta^2 = .06$. In summary, these findings suggested no impact of ILTs on ratings of all leadership perceptions within the person-oriented framework of accuracy-based implicit measures, consistent with the results of the person-oriented approach to explicit ILTs measure.

Table 15. *Mean Differences in Leadership Perceptions for ILTs Profiles Based on Response Accuracy (n = 137)*

Profile	Leadership Perception										
	Overall LBDQ	Consideration	Initiating Structure	Overall Charismatic Leadership	SVA	SE	SMN	PR	UB	Leader Influence	Perceived Leader Fit
1	3.66 (0.65)	3.73 (0.79)	3.54 (0.64)	3.21 (0.92)	3.19 (1.02)	3.53 (1.02)	3.71 (1.14)	2.69 (1.18)	2.86 (1.05)	3.87 (1.02)	3.21 (1.32)
2	3.60 (0.63)	3.63 (0.77)	3.56 (0.67)	2.97 (0.88)	3.08 (1.11)	3.38 (0.77)	3.31 (1.19)	2.29 (1.02)	2.49 (1.22)	3.89 (0.79)	3.33 (1.29)
3	3.43 (0.53)	3.43 (0.75)	3.44 (0.69)	2.86 (0.86)	2.98 (1.21)	2.99 (0.94)	3.01 (1.21)	2.56 (1.06)	2.54 (1.20)	3.65 (0.84)	3.04 (1.08)
4	3.40 (0.53)	3.48 (0.61)	3.25 (0.68)	2.73 (0.77)	2.77 (1.04)	3.14 (0.86)	3.13 (0.88)	2.22 (0.75)	2.22 (0.85)	3.65 (0.93)	3.00 (1.30)
5	3.11 (0.71)	3.27 (0.79)	2.83 (0.80)	2.72 (0.90)	2.79 (1.21)	3.13 (1.18)	2.67 (1.08)	2.29 (0.98)	2.50 (0.98)	3.38 (1.01)	3.00 (1.31)
6	3.33 (0.65)	3.29 (0.74)	3.41 (0.85)	3.01 (1.01)	3.02 (1.13)	3.25 (1.18)	3.30 (1.10)	2.77 (1.05)	2.58 (1.24)	3.60 (1.01)	2.89 (1.33)
7	3.67 (0.67)	3.77 (0.87)	3.49 (0.64)	3.04 (0.78)	3.14 (1.01)	3.58 (0.88)	3.77 (1.15)	2.24 (0.80)	2.17 (0.85)	3.83 (1.22)	3.55 (1.18)
Overall	3.50 (0.63)	3.54 (0.77)	3.41 (0.71)	2.96 (0.87)	3.02 (1.08)	3.30 (0.97)	3.35 (1.14)	2.47 (1.00)	2.49 (1.07)	3.73 (0.98)	3.16 (1.24)

Table 15. *Continued*

Profile	Leadership Perception										
	Overall LBDQ	Consideration	Initiating Structure	Overall Charismatic Leadership	SVA	SE	SMN	PR	UB	Leader Influence	Perceived Leader Fit
Profile Comparisons	$F(6, 130) = 1.59$	omnibus $F(12, 258) = 1.21$		$F(6, 130) = 0.82$	omnibus $F(30, 506) = 1.13$					$F(6, 130) = 0.47$	$F(6, 130) = 0.66$
Profile Comparisons Controlling for Gender	$F(6, 129) = 1.56$	omnibus $F(12, 256) = 1.20$		-	omnibus $F(30, 502) = 1.12$					$F(6, 129) = 0.46$	-
Profile Comparisons Controlling for Gender and Perceived Leader Fit	$F(6, 128) = 1.72$	omnibus $F(12, 254) = 1.21$		$F(6, 128) = 2.09$	omnibus $F(30, 498) = 1.23$					$F(6, 128) = 0.32$	-

Note. Standard deviations are presented in (parentheses) below each mean. LBDQ = Leader Behavior Description Questionnaire. SVA = Strategic Vision and Articulation; SE = Sensitivity to the Environment; SMN = Sensitivity to Member Needs; PR = Personal Risk; UB = Unconventional Behavior.

Use of the latency index. The same analytic strategies used in accuracy-based implicit ILTs profiles were adopted in the latency-based approach to ILTs. Three separate ANOVAs were conducted to test group differences in the overall rating of the LBDQ, charismatic leadership, and perceived leader influence. The Levene's test found that the assumption of homogeneity of variance was met in these four overall measures. ANOVA results indicated eight ILTs profiles did not differ in the overall LBDQ ratings, $F(7, 90) = 0.47$, $p = .86$, $\eta 2 = .04$, the overall charismatic leadership ratings, $F(7, 90) = 1.52$, $p = .17$, $\eta 2 = .11$, and the ratings of perceived leader influence, $F(7, 90) = 0.78$, $p = .61$, $\eta 2 = .06$. Due to significant relationships of gender with the overall LBDQ ratings and perceived leader influence, ANCOVA was conducted for each of the two measures to control for gender effects. The same results for both dependent variables were found in the ANCOVA results.

To test whether cluster profiles differed in the subscale scores of the LBDQ and CKS, MANOVA was performed on each set of dependent variables. Wilks' lambda indicated no overall effect of cluster profile membership on the Consideration and Initiating Structure ratings, omnibus $F(14, 178) = 0.51$, $p = .93$, $\eta^2 = .04$. The same result was also found in the set of five charismatic leadership sub-scales, omnibus $F(35, 364.20) = 1.13$, $p = .29$, $\eta^2 = .08$. Given that the ratings on Consideration in the LBDQ scale and on Sensitivity to Member Needs in the CKS were significantly related to gender, MANCOVA was separately conducted for two sets of dependent variables to test for differences between cluster profiles in leadership perceptions when gender effects were held constant. Results indicated that ILTs

profiles were not significantly different from one another in both sets of leadership subscales. Table 16 shows mean ratings of leadership measures for accuracy-based ILTs profiles.

Relationships between ILTs and leadership perceptions were also examined when subordinates' gender and perceived leader fit were accounted for. ANCOVA results showed no group differences in the overall LBDQ ratings, $F(7, 88) = 0.48$, $p = .85$, $\eta^2 = .04$, and perceived leader influence, $F(7, 88) = 0.71$, $p = .67$, $\eta^2 = .07$. However, profiles differed in the overall ratings of charismatic leadership, $F(7, 88) = 2.34$, $p = .03$, $\eta^2 = .16$. Bonferroni post hoc tests indicated members in Profile 5 tended to give higher ratings on the overall charismatic leadership than did those in Profile 7 ($p < .05$).

To test group differences in the subscale scores controlling for effects of perceived leader fit and gender, Wilks' lambda statistic indicated no group differences in the set of the LBDQ subscales, omnibus $F(14, 174) = 0.53$, $p = .91$, $\eta^2 = .04$, and the five subscales of the CKS, omnibus $F(35, 355.79) = 1.35$, $p = .09$, $\eta^2 = .10$. In summary, when patterns of ILTs traits were based on response latency to the Dedication, Intelligence, Charisma, and Tyranny traits, the results showed that subordinates' ILTs were generally not related to their leadership perceptions. This finding was consistent with the explicit ILTs measure and the accuracy-based approach to ILTs.

Table 16. *Mean Differences in Leadership Perceptions for ILTs Profiles Based on Response Latency (n = 98)*

Profile	Leadership Perception										
	Overall LBDQ	Consideration	Initiating Structure	Overall Charismatic Leadership	SVA	SE	SMN	PR	UB	Leader Influence	Perceived Leader Fit
1	3.70 (0.67)	3.83 (0.73)	3.83 (0.73)	3.41 (1.10)	3.52 (1.29)	3.79 (1.22)	3.78 (1.13)	2.72 (1.02)	2.94 (1.18)	4.00 (0.37)	3.67 (1.37)
2	3.46 (0.67)	3.63 (0.75)	3.63 (0.75)	2.81 (0.83)	2.71 (0.88)	3.47 (1.08)	3.71 (1.23)	2.08 (0.83)	2.00 (0.87)	3.83 (1.26)	2.88 (1.64)
3	3.52 (0.68)	3.65 (0.79)	3.65 (0.79)	2.97 (0.84)	2.88 (1.03)	3.45 (0.92)	3.54 (1.06)	2.54 (0.85)	2.40 (1.10)	3.60 (1.16)	3.13 (1.20)
4	3.72 (0.78)	3.79 (0.93)	3.79 (0.93)	3.32 (1.04)	3.45 (1.25)	3.27 (0.99)	3.70 (1.34)	3.12 (1.18)	2.88 (1.20)	4.09 (0.62)	3.55 (1.21)
5	3.53 (0.44)	3.66 (0.52)	3.66 (0.52)	3.30a (0.66)	3.37 (0.84)	3.38 (0.70)	3.67 (0.94)	3.08 (1.31)	2.86 (0.97)	3.97 (0.77)	3.25 (0.87)
6	3.54 (0.59)	3.55 (0.82)	3.55 (0.82)	2.73 (0.98)	2.80 (1.25)	3.35 (0.81)	3.20 (1.29)	2.09 (1.09)	1.91 (1.21)	3.84 (0.92)	3.00 (1.25)
7	3.34 (0.49)	3.36 (0.67)	3.36 (0.67)	2.52a (0.82)	2.53 (1.11)	3.02 (0.98)	2.80 (1.13)	2.02 (0.82)	2.02 (0.90)	3.42 (0.77)	3.07 (1.22)
8	3.54 (0.52)	3.60 (0.63)	3.60 (0.63)	2.95 (0.69)	3.07 (0.98)	3.10 (0.84)	3.51 (0.78)	2.40 (0.95)	2.47 (0.81)	3.91 (0.90)	3.40 (1.12)

Table 16. *Continued*

Profile	Leadership Perception										Perceived Leader Fit
	Overall LBDQ	Consideration	Initiating Structure	Overall Charismatic Leadership	SVA	SE	SMN	PR	UB	Leader Influence	
Overall	3.53 (0.59)	3.61 (0.72)	3.61 (0.72)	2.95 (0.88)	2.99 (1.09)	3.31 (0.91)	3.43 (1.12)	2.48 (1.06)	2.39 (1.07)	3.80 (0.90)	3.21 (1.19)
Profile Comparisons	$F(7, 90) = 0.47$	omnibus $F(14, 178) = 0.51$		$F(7, 90) = 1.52$	omnibus $F(35, 364.20) = 1.13$					$F(7, 90) = 0.78$	$F(7, 90) = 0.49$
Profile Comparisons Controlling for Gender	$F(7, 89) = 0.42$	omnibus $F(14, 176) = 0.48$		-	omnibus $F(35, 359.99) = 1.17$					$F(7, 89) = 0.70$	-
Profile Comparisons Controlling for Gender and Perceived Leader Fit	$F(7, 88) = 0.48$	omnibus $F(14, 174) = 0.53$		$F(7, 88) = 2.34$*	omnibus $F(35, 355.79) = 1.35$					$F(7, 88) = 0.71$	-

Note. Standard deviations are presented in (parentheses) below each mean. LBDQ = Leader Behavior Description Questionnaire. SVA = Strategic Vision and Articulation; SE = Sensitivity to the Environment; SMN = Sensitivity to Member Needs; PR = Personal Risk; UB = Unconventional Behavior.

Relationships of the explicit and implicit ILTs profiles with subordinates' characteristics.

Explicit ILTs profiles. In examining the relationship between explicit ILTs profiles and subordinates' characteristics, results indicated that females and males were not different in their ILTs profiles ($\chi 2 = 13.32$, $p = .07$). Although differences in the membership of ILTs profiles with respect to age ($F = 2.14$, $p = .04$, $\eta 2 = .07$) were found, Bonferroni post hoc tests did not show any group differences. Comparisons on full-time work history ($F = 1.43$, $p = .20$) showed no differences among explicit ILTs profiles; however, length of current employment was related to ILTs profile membership (Welch statistic = 2.66, $p = .02$). Games-Howell post hoc tests showed that the members in Profile 6 (mean year = 4.46) had been in their respective current positions longer than had those in Profile 2 (mean year = 1.63). In brief, results showed that ILTs profile membership based on prototypicality ratings was somewhat related to subordinates' length of current employment but not associated with their age, gender, and full-time work history.

Implicit ILTs profiles based on response accuracy. When profile membership was based on the pattern of response accuracy in the three GNATs, males and females were not different in profile membership ($\chi 2 = 3.85$, $p = .70$). Similarly, there was no difference in the profile membership with respect to full-time work history ($F = 1.66$, $p = .14$) and length of current employment ($F = 0.71$, $p = .64$). However, there were differences in the profile membership with respect to age (Welch statistic = 2.81, $p = .02$). Games-Howell post hoc

testing showed that the members in Profile 7 (mean age = 36.32) tended to be younger in age than were those in Profile 2 (mean age = 28.13).

Implicit ILTs profiles based on response latency. Based on the pattern of response latency in the Dedication, Intelligence, Charisma, and Tyranny traits, profile membership was not associated with gender ($\chi^2 = 4.09$, $p = .77$). Also, there was no differences in the profile membership with respect to age (Welch statistic = 2.04, $p = .08$), full-time work history ($F = 1.76$, $p = .11$), and length of current employment ($F = 1.21$, $p = .31$). This finding was not consistent with the findings of the person-oriented approach to ILTs measured either by prototypicality ratings or response accuracy.

Discussion

ILTs research shifts the focus of the leadership literature to acknowledge the important role of followers' cognitive and perceptual processes in the construction of leadership (Epitropaki & Martin, 2004). The primary aims of the present study were to address the measurement issues associated with ILTs and to explore how differences in ILTs related to subordinates' characteristics and their perceptions of leadership. The particular contributions of this study were fourfold. First, an explicit ILTs measure was refined by incorporating items from the two most commonly used ILTs rating scales. Four ILTs dimensions, Malevolence, Charisma, Social Awareness, and Sensitivity, were identified. Second, this study was one of the first to develop implicit measures that are consistent with the automatic processing nature of ILTs as implicit cognition. The GNAT technique for assessing implicit social cognition was employed in the development of implicit ILTs

measures. The web-base version of the GNATs was administered in a large and diverse sample and in a non-laboratory setting in order to increase ecological validity of the results and to reach groups that might be difficult to get into laboratory settings, such as employees (Bassett & Dabbs, 2005). The accuracy index of association strength suggested that only Sensitivity, Dedication, and Intelligence traits were used in distinguishing leaders from non-leaders, whereas the latency index showed that Dedication, Intelligence, Charisma, and Tyranny were four critical traits in leader identification.

Third, this was one of the few studies investigating the extent to which subordinates' implicit beliefs about leadership are related to their leadership ratings and individual characteristics. The leadership measures were chosen to confirm and extend previous research on the potential role of ILTs as a bias in leadership measurement (e.g., Bass & Avolio, 1989; Rush et al., 1977). Given limited existing evidence on the extent to which raters' ILTs had impact on their evaluations of leaders, this paper makes another particular contribution to add to the understanding of ILTs and their potential implications. Finally, both the variable-oriented and person-oriented approaches to ILTs were adopted in the present study. Besides the variable-oriented approach, one aim of this study was to identify patterns of ILTs traits and behaviors based on prototypicality ratings and response accuracy and latency and to further explore how these patterns differ on indicators of leadership perception. Overall, the relationships between ILTs, leadership perceptions, and raters' characteristics were found in the variable-oriented approach only.

Measurement issues concerning ILTs are highlighted. Potential limitations and threats to both internal and external validity (Shadish, Cook, & Campbell, 2002) associated with the measurement methods used are also identified and discussed. Findings of the variable-oriented and person-oriented approaches to ILTs and implications for future research and organizational practices are discussed.

Measurement of ILTs

ILTs have been typically measured by asking individuals to rate how characteristic each trait was of a leader. Adopting this approach, four factors of ILTs were found in the refined explicit measure: Malevolence, Charisma, Social Awareness, and Sensitivity. Malevolence and Charisma were the two dominant factors that accounted for a very large part of the variance in this study. The Malevolence factor was defined by antiprototypical traits in the Offermann et al. (1994) scale and the CLT scale (House et al., 1999). Most of prototypical traits from the Offermann et al. (1994) scale and the traits associated with charismatic leadership constituted the Charisma factor. The Social Awareness factor was primarily defined by items from the House et al. (1999) CLT scale and described a leader's tendency to be bounded by established rules and social expectations. This ILTs dimension is unique from Offermann et al.'s (1994) eight ILTs dimensions by including traits that are less associated with the typical "Western-oriented" leadership literature, such as "Individualistic," "Unique," and "Independent" (Hanges & Dickson, 2004). The endorsement of these leader traits seems to reflect the individualistic aspect of the United States culture from which the study participants were sampled. On the other hand, the so-called "Eastern" leader items

concerning Procedural and Status Consciousness, two subscales of the Self-Protective factor in the CLT scale (1999), also heavily loaded on the Social Awareness factor. The emergence of this factor suggests that one's attention to social norms may be an important trait to be perceived as a leader, and its related traits and behaviors have been omitted in the commonly used ILTs measures at the individual level (e.g., Offermann et al., 1994; Epitropaki & Martin, 2004). In addition, this finding indicates that some of the ILTs traits evidenced at the cultural level in the GLOBE project (House, et al., 1999) may also be used at the individual level of analysis. The last factor, Sensitivity, contains leader attributes associated with interpersonal sensitivity and honesty.

In the explicit ILTs measure, stronger relationships were found between Malevolence and Social Awareness and between Charisma and Sensitivity. These findings suggest that traits related to charisma and interpersonal sensitivity were considered prototypical leader attributes. Traits and behaviors associated with Social Awareness may not be as prototypical as Charisma and Sensitivity traits and may be somewhat negative leader traits. In other words, individuals tend to perceive a leader as someone who is sensitive, honest, charismatic, and team-oriented but slightly less attentive to social norms and exhibits less tyrannical and malicious behaviors.

In this study, only four ILTs factors were extracted from the combined explicit measure, in comparison to Offermann et al.'s (1994) eight factors and six global factors of the CLT scale (House, et al., 1999). The decision for the number of latent factors retained was made based on multiple criteria, including the Kaiser rule, the "elbow" of the scree plot,

the interpretability of the factors, and high communalities and loadings (Thompson, 2004). If the Kaiser rule were employed as the only criterion for retaining factors, 14 factors with initial eigenvalues greater than 1.00 would have been reported. By taking into account the eigenvalues for the first six unrotated factors (i.e., 16.61, 15.57, 4.36, 3.14, and 1.92) and examining the content of the items, the four-factor solution was superior to the three- or five-factor model. A concern may be raised that these factors may represent the sources from which the items come because the ILTs items in this study were combined from the two established scales. However, this concern can be eliminated by the finding that three of the four factors, Malevolence, Charisma, and Social Awareness, all consist of items from both the Offermann et al. (1994) scale and the CLT scale (House, et al., 1999) and are not dominated by either one of the scales. Although the number of factors emerged in this study is smaller, it is close to the finding of the GLOBE study (House, et al., 1999) in which six global factors were found. In addition, Epitropaki and Martin (2004) also suggested that ILTs could be represented by six factors. Nevertheless, future research may further confirm the factor structure underlying ILTs.

Even though ratings are appropriate in measuring some constructs, this study argued that implicit cognition, such as ILTs, would be better assessed when respondents are forced to engage in automatic information processing (Greenwald & Banaji, 1995; Wilson et al., 2000). As one of the contributions to ILTs research, this study developed implicit measures of ILTs. In the implicit measures, the findings based on the accuracy index of association strength suggested that only Dedication and Intelligence traits were more strongly related to

leaders than to non-leaders. In contrast, Sensitivity traits were more likely to be paired with non-leaders than with leaders. Use of the latency index of association strength demonstrated Dedication, Intelligence, Charisma, and Tyranny had stronger associations with leaders than with non-leaders. No evidence for Sensitivity as an attribute that is associated with leaders raises concerns about validity of the commonly used measures in ILTs research. In previous ILTs studies (Epitropaki & Martin, 2004; Offermann et al., 1994), the emergence of the Sensitivity dimension in factor analysis and the high prototypicality ratings of its items led to the conclusion that people expected leaders to be sincere, understanding, and warm. However, it is very likely that the ratings were affected by self-presentation biases since these Sensitivity items were socially desirable traits (Fazio & Olson, 2003). The other evidence for the potential influence of self-report biases on explicit ILTs measures is the unexpected finding of a stronger association between Tyranny and the leader category. ILTs research based on prototypicality ratings argued that leaders were expected to be low in tyranny traits (Epitropaki & Martin, 2004; Offermann et al., 1994). It seems plausible that tyrant traits tend to be rated low in prototypicality as they are socially undesirable traits even though individuals believe tyranny traits are characteristic of leaders. The inconsistent findings on explicit and implicit ILTs measures may illustrate a fundamental distinction between responses reflecting deliberate processes and responses produced when conscious control is limited. No correspondence between explicit and implicit responses to all the ILTs dimensions across indices of association strength, with one exception, also lends support to the distinction between these two levels of information processing.

However, the results of the implicit ILTs measures should be interpreted with caution. The results of the two types of association strength indices did not completely converge in terms of what leader attributes were used to distinguish leaders from non-leaders, even though the accuracy and latency indices for each leader attribute were highly correlated with each other. The stronger association of the leader category with Dedication and Intelligence, in comparison to the non-leader category, in both types of association strength indices is consistent with the research findings on the content of the ILTs (e.g., Epitropaki & Martin, 2004; Offermann et al., 1994). On the other hand, the stronger Sensitivity-non-leader association in the accuracy-based GNAT and the relations of the leader category with Charisma and Tyranny in the latency-based GNAT illustrate that implicit measures differ in their ability to assess implicit beliefs. However, the finding of lack of complete convergence between the accuracy- and latency-based analyses makes the utility of implicit measures in the assessment of ILTs ambiguous. Moreover, this study cannot rule out the possibility that the results may suffer from low reliability of the GNATs, in reference to the conventional reliability standard. The reliability of the GNAT is less known, and no specific procedure is established. As a result, many studies (e.g., Bassett & Dabbs, 2005; Boucher et al., 2009; Park, Glaser, & Knowles, 2008; Smith, Stewart, Myers, & Latu, 2008; Spence & Townsend, 2006; Zogmaister, Arcuri, Castelli, & Smith, 2008) did not report the reliability of their GNATs. As one of the few exceptions, Devos and Ma (2008) divided each block of trials into parcels and calculated Cronbach's α values. Steps similar to their study were used to assess reliability of the GNATs in the present study. All the internal consistency estimates were

considered to be acceptable for implicit measures (Devos & Ma, 2008; Nosek & Banaji, 2001). However, it is likely that with more power and more reliable GNATs, evidence for the convergence of the two indices of association strength would be better supported.

Person-Oriented Approach to ILTs

Taken a holistic view of the attributes used in the leader-non-leader distinction, different patterns of leader attributes demonstrate the existence of different leader prototypes and reflect the idiosyncrasy of implicit theories, consistent with Larson's (1979) argument. Although the purpose of the present study was not to definitively describe the different ILTs profiles, it is worth noting some interesting findings within and across different ILTs measures. Using the explicit ILs measure, eight cluster profiles emerged, with the largest groups in Profile 5 and Profile 6. The pattern of Profile 5 is the closest to the ILTs finding using the variable-oriented approach, in which leaders were generally expected to be charismatic, considerate, and attractive but not tyrannical (e.g., Epitropaki and Martin, 2004, 2005; House et al., 1999; Offermann et al., 1994). This leader prototype is also consistent with the leadership theories that advocate the transformational (Conger et al., 2000; Judge & Piccolo, 2004) and consideration leadership style (Judge et al., 2004). On the other hand, the pattern of Profile 6 is somewhat surprising. Besides the Malevolence traits, the members in Profile 6 did not value the traits associated with Charisma, Social Awareness, and Sensitivity, as much as did the members of other cluster profiles. In the accuracy-based implicit measures, the seven-cluster solution was supported. The largest profile group was Profile 1, in which leaders with average Dedication and Intelligence and below average on Sensitivity

were expected. This finding is quite similar to the variable-oriented analysis of the implicit ILTs measure in the present study. Using the latency-based implicit measures, the biggest group was Profile 3. The members of this group believed leaders should be average on Charisma and be more dedicated but less intelligent and tyrannical than average.

Although in this study different ILTs measures assess different ILTs dimensions, the traits overlap to some extent among the measures. Some convergent findings were revealed across the three profile solutions. First, the pattern of Profile 5 using the explicit ILTs measure was quite close to that of Profile 1 using the latency-based implicit measures. In both profiles, being above average on the traits related to Dedication and Charisma and below average on the Tyranny related traits is expected of a leader. In addition, Profile 7 in the explicit ILTs measure was similar to Profile 5 using the latency-based implicit measures in that both groups had a higher expectation on leader traits associated with dedication, intelligence, and charisma. Interestingly, they also expected a leader to be more tyrannical than average. Profile 2 in the accuracy-based results was close to Profile 2 in the latency-based implicit measures. Both groups preferred leaders to be below average on Dedication and Intelligence. On the other hand, Profile 5 in the accuracy-based clustering and Profile 7 in the latency-based clustering were similar in the way that cluster members had a higher expectation on leaders' intelligence but not on their dedication. These cluster members seemed to focus more on the nature aspect of an individual than do other groups. In contrast, the members in Profile 7 of the accuracy-based measure and Profile 3 of the latency-based

measure valued the Dedication but not Intelligence traits in a leader more than other profile groups.

In summary, these findings suggest that people do hold different leadership prototypes, the idiosyncratic nature of ILTs. Some similar patterns of ILTs traits could be observed across different indices of the ILTs measures. In addition, the importance of considering the relationships between different ILTs dimensions (Koommoo-Welch, 2008) is demonstrated. More importantly, the possession of not only typical prototypical traits (e.g., Dedication, Intelligence) but also the so-called antiprototypical traits (e.g., Tyranny, Malevolence) could be expected of a leader for some perceivers. The ILTs profile with above average on the traits associated with Tyranny and Malevolence seem to illustrate that the measures in this study assessed prototypical, representative leader traits and behaviors, rather than ideal, effective leader behaviors. This finding is consistent with Ensari and Murphy's (2003) and Foti et al.'s (1982) study in which prototypicality was found to measure something besides favorability or effectiveness.

Relating ILTs to Leadership Perceptions

Implicit beliefs about leadership have been considered a source of the "nonbehavioral" effects in leadership measurement that distort raters' perceptions of leadership (Lord, 1985; Rush et al., 1977; Staw, 1975). The influence of ILTs on ratings of leader behavior has been evidenced in experimental studies (Lord et al., 1984; Rush et al., 1977). However, there is limited information concerning the extent to which leadership ratings are influenced by raters' ILTs and what leader behaviors are more susceptible to the

influence of ILTs. To extend beyond previous research, the present study examined the potential effect of ILTs on ratings of Consideration and Initiating Structure behaviors, charismatic leadership behaviors, and perceived leader influence in a real-world setting, rather than in laboratory settings (e.g., Rush et al., 1977). Correlations between raters' ILTs ratings and behavioral ratings of their immediate supervisor indicated that prototypicality ratings on Malevolence, Charisma, Social Awareness, and Sensitivity all were related to leadership ratings to some extent. Particularly, Charisma and Sensitivity had impact on more measures of leadership perception.

After controlling for raters' age, gender, and work experience, prototypicality ratings on Malevolence were positively related to the overall ratings of charismatic leadership and the ratings of Sensitivity to the Environment and Sensitivity to Member Needs. When the four raters' characteristics were accounted for, Charisma had unique contribution in the prediction of the overall LBDQ rating and the rating on Initiating Structure behavior. This result is somewhat inconsistent with Rush et al.'s (1977) study in which they found ILTs affected the mean ratings of both Consideration and Initiating Structure behavior. This discrepancy may partly contribute to a different factor structure of the LBDQ, as the original two-factor structure was not confirmed in this study. In the present study, although two subscale scores of the LBDQ were created, the scoring was based on the refined two-factor structure. According to the result of exploratory factor analysis and the examination of content coverage, one item originally assigned to the Initiating Structure subscale was grouped with items assessing Consideration. When the effects of four raters' characteristics

were held constant, Social Awareness traits and Sensitivity uniquely contributed to ratings on some charismatic leadership behaviors. These findings provide some support for the potential influence of ILTs on ratings of transformational leadership (Bass & Avolio, 1989), which is conceptually close to charismatic leadership explored in this study (Judge & Piccolo, 2004). In brief, these findings suggest that not all ILTs traits had the same impact on leadership measurement. Some ILTs traits have a greater impact on leadership perceptions than do others. Also, some measures of leader behavior and leader influence may be not sensitive to raters' ILTs.

To further distinguish the ILTs construct and the perceived leader fit construct (i.e., the ILTs congruence construct), the present study supported that they were distinct constructs and eliminated the concern that explicit ILTs ratings simply measured the attributes of one's immediate supervisor. In addition, the unique role of raters' ILTs in leadership, in relation to perceived leader fit, was evidenced. Although perceived fit between raters' image of a leader and their supervisor's attributes accounted for the majority of variance in leadership ratings, raters' ILTs as a whole still contributed to the prediction of leadership perceptions above and beyond their perceived leader fit. This finding appears to suggest the importance of studying individuals' image of leaders in leadership measurement and to support the argument that leadership ratings reflect both the observed behaviors of the leader and the perceptual-memory processing of the rater (Rush et al., 1977). However, the effect of ILTs on organizational behavior ratings also raises concern about the construct validity of many

popular behavioral rating scales, which has been supported by correlating these behavioral ratings with performance outcomes (Shondrick et al., 2010).

To assess ILTs using implicit measures, no relations between raters' ILTs and leadership perceptions were found, regardless of type of association strength index. The inconsistent findings between implicit and explicit ILTs measures may be due to the different levels of information processing involved in responses. In both the explicit ILTs measures and the leadership perception scales, participants were explicitly asked to provide their ratings on the questions. In this case, deliberate information processing and conscious control were allowed. Self-presentation effects, such as social desirability, may contaminate responses produced. The relationships between explicit ILTs measures and leadership ratings may simply reflect the effect of common information processing involved in rating responses. Given that spontaneous information processing was required in responses to the implicit ILTs measures, it may be reasonable to see its insignificant relationships with leadership ratings. However, as noted previously, it is also likely that unobserved relationships between raters' ILTs and their leadership perceptions may be attributed to low reliability of implicit measures in general, in comparison to the conventional reliability standard.

Using the person-oriented approach to ILTs, in overall the patterns of ILTs response were not related to leadership perception, regardless of what the ILTs clusters were based on (e.g., the explicit or implicit measure, accuracy-based or latency-based ILTs scoring). The result was found in both the overall ratings and subscale ratings of these leadership measures,

even when the effects of gender and perceived leader fit were accounted for. One exception is the overall charismatic leadership whose ratings were significantly different between two clusters using the response latency scoring. In general, the consistent results across ILTs measures seem to provide strong support that individuals with different leader prototypes may not rate behaviors of their immediate supervisor differently. However, this finding may not discount the utility of the person-oriented approach to ILTs. Instead, it appears to illustrate the need to answer the "when" question: under what conditions the pattern of ILTs traits would be important in understanding a phenomenon. Indeed, it is plausible that the person-oriented approach to ILTs may explain leadership phenomena better at the dyadic level than at the individual level. For instance, Koommoo-Welch (2008) reported the congruence between subordinates' ILTs and their perceptions of leaders' ILT-relevant behaviors was positively related to the ratings of leader charisma. Although the purpose of the present study was not to focus on the construct of ILT congruence, the analyses, in which the perceived congruence between one's ILTs and behaviors of his/her supervisor was a control variable, showed the results consistent with Koommoo-Welch's (2008) study. Specifically, the influence of ILT congruence on leadership ratings was evidenced at the scale as well as subscale level of all the leadership measures, even though only a single item was used to assess ILT congruence in the present study. However, future research may adopt the ILTs measures developed in this study along with the Koommoo-Welch (2008) operational definition of ILT congruence to establish the utility evidence for the person-oriented approach to ILTs.

Individual Differences in ILTs

This study explored how ILTs related to follower characteristics. Using the explicit ILTs measure, individuals different in age, gender, full-time work history, and length of current employment had different images of a leader. Individuals younger in age, relatively new to their current job, or with less full-time work experience, tended to find the Social Awareness traits to be important in a leader. The findings appear to suggest that individuals' images of a leader may be largely influenced by social norms and expectations in the early stage of socialization in the workplace. In contrast, the Charisma leader traits tended to be expected by subordinates older in age or those with a longer full-time work history. Also, Charisma was more likely to be considered important in a leader by female rather than by male subordinates. Malevolence leader traits generally tended to be valued by subordinates new to their current job or new to the workplace. These findings somewhat contradicted the Epitropaki and Martin (2004) study, in which no significant differences were found for the groups of age and organizational tenure on their six ILTs dimensions. Future research would be needed to clarify the relationship of prototypicality ratings with raters' age and work experience. Moreover, the finding of no gender difference in the Malevolence traits did not provide support for Epitropaki and Martin's (2004) result that males had an image of a leader as more domineering, pushy, and manipulative than did females. Furthermore, no gender difference in ratings of the Sensitivity traits contradicted the argument that females expected leaders to be understanding, sincere, and honest (Epitropaki & Martin, 2004). In brief, these findings demonstrate individual differences in ILTs and illustrate the effect of different life

experiences, as a result of different individual characteristics, on the formation of one's implicit beliefs about leadership (Hunt, Boal, & Sorenson, 1990; Keller, 2003).

With implicit ILTs measures, no individual differences in ILTs were discovered using the accuracy-based scoring. However, an age difference was found in strength of associations between the Intelligence trait and the leader category when the latency index was used. There was a stronger association between leaders and Intelligence among individuals older in age. The fact that age was neither consistently, negatively related to the latency indices nor consistently, positively related to the accuracy indices in the implicit ILTs measures eliminated the concern that the GNATs would be sensitive to respondents' age (Nosek et al., 2007).

In the person-oriented approach to ILTs, the relationships between ILTs profile membership and subordinates' characteristics varied by type of the measure and the strength association indices. Subordinates' length of current employment had influence on profile membership of the explicit ILTs measure, whereas their age was associated with cluster assignment of the accuracy-based implicit ILTs measures. The four subordinates' characteristics did not have impact on profile membership of the latency-based implicit measures. The results of the explicit and latency-based implicit measures provided support for the finding that age and gender did not have influence on ILT profile (Koommoo-Welch, 2008).

Variable-Oriented versus Person-Oriented Approach to ILTs

Analyses of the linear associations between single ILTs dimensions have been the most commonly used approach for exploring the role of this implicit social cognition in leadership. However, in these analyses questions still remain about the possible impact of combinations of factors. That is, it is unclear whether the influence of an ILTs factor changes when it interacts with other ILTs factors. Since the person-oriented approach provides a test of a particular type of interaction (O'Shea, Foti, Hauenstein, & Bycio, 2009), this study examined ILTs using the person-oriented as well as variable-oriented approach. As Mangusson and Torestad (1993) argued, the variable-oriented and person -oriented approaches both have their own strengths and weaknesses in understanding a psychological phenomenon. Neither of them is an inherently superior methodology, and a combination of both variable- and person-oriented research is a means to fully understand a psychological phenomenon.

In the present study, there were different patterns of relationships with leadership perception and follower characteristics between the two approaches to the explicit ILTs measure. In the variable-oriented approach, the overall ratings on the LBDQ and charismatic leadership and the ratings on Initiating Structure, Sensitivity to the Environment, Sensitivity to Members, and Personal Risk were significantly related to prototypicality ratings in one of the four ILTs dimensions, when the effects of other ILTs factors as well as follower characteristics were controlled. Also, each ILTs factor was associated with at least one follower characteristic. In contrast, this pattern of relationships was not revealed in the

person-oriented approach. This finding suggests that ILTs factors may not interact to influence leadership ratings. However, according to Koommoo-Welch's (2008) study it seems plausible that the interacting effect of ILTs factors on leadership measurement would be revealed when taking into account the extent to which supervisors fit into their followers' leadership beliefs. Researchers may further test this hypothesis with the explicit ILTs measure derived from the current study.

The discrepancy between the variable- and person-oriented approaches to ILTs was also found in the implicit ILTs measures. No relationships were found between ILTs and leadership perceptions in the variable-oriented analysis of the implicit ILTs measures for both types of strength association indices, whereas the relationship between the latency-based ILTs profile and the overall ratings of charismatic leadership was discovered. In relation to follower characteristics, the variable-oriented approach to ILTs showed relationships of the latency-based ILTs with age and length of current employment. However, in the person-oriented approach only the accuracy-based ILTs related to age. In summary, the different findings between the variable-oriented and person-oriented approach to ILTs seem to suggest the differential ability of these approaches to explain leadership phenomena.

Limitations

Perhaps the most salient limitation associated with the present study is the fact that not all participants completed the entire study survey, consisting of the explicit ILTs measure, five GNATs, three measures of leadership perceptions, and demographic information. Because of the inclusion of five GNATs and the use of a relatively large number

of response trials that are required for a reliable GNAT, only a subset of participants completed all of the implicit ILTs measures. In this study, the order of the explicit and implicit ILTs measures was randomly assigned. Many participants starting with the explicit measure quit before completing implicit ILTs, even though the sample sizes for the GNATs are still relatively large compared to other GNAT studies (e.g., Bassett & Dabbs, 2005; Nosek & Banaji, 2001). Although no difference in strength of associations between those completing both explicit and implicit ILTs measures and those completing implicit ILTs measures only, the difference in prototypicality ratings between participants with or without GNAT data suggested that the results with respect to explicit ILTs measures should be interpreted with caution. Strategies for preventing participants' early withdrawal need to be sought in future studies. For instance, only one or two GNATs are requested for each participant. Second, additional procedures for increasing attentive responding to a web-based version of the GNAT in a non-laboratory setting are needed. Due to the nature of the GNATs (i.e., no response is required if the term belongs to neither categories) and the design of the software program (i.e., respondents cannot exit each GNAT once it is started), response accuracy for each trial in a GNAT were recorded even without any response attempts. Although participants extremely high or low in the number of responses attempts were excluded from analysis, this study still cannot completely eliminate the concern about random responding. However, the potential effect of random responding is not unique to the present study or to the GNAT as study participants can choose to randomly respond to almost any type of survey in any study.

There may be some justification for renaming the term "self-prresentation bias" to "common rater bias" based on the premise that implicit leadership theories are not actually related to the self, and perhaps this option should be pursued in future studies. For purposes of the present research, however, the term has remained unchanged since one could argue that ILTs are actually all about self. Specifically, ILT is about the leader in one's mind. While individuals may try to answer the ILTs measure in a way that is consistent with the social norm, the whole idea of using implicit measures is to reduce self-presentation bias. If no such bias existed, there would be no need to develop an ILTs measure.

Implications for Future Research

As the primary aim of this study, the refined explicit ILTs measure was based on Offermann et al.'s (1994) ILTs scale and incorporated leader attributes from the CLT scale (House et al., 1999), the most recent ILTs measure. The refinement was made with two primary considerations: 1) the broad inclusion of prototypical leader attributes and 2) the inclusion of both culture-universal and culture-specific leader attributes. As a result, this measure can be used for research in which comparisons of ILTs across cultures at the individual level are desired.

The inconsistent findings between the explicit and implicit measures in terms of what traits and behaviors were used in the leader-non-leader distinction seem to suggest a potential threat of self-presentation biases to the validity of the explicit ILTs measure. Future research may include social desirability scales along with the explicit ILTs measure to investigate whether self-presentation biases actually have impact on prototypicality ratings.

In addition, the number of items in the final refined explicit measure, 69 items, may be considered to adversely impact its practical value, even though the purpose of this study was to create a comprehensive list of traits and behaviors in describing leader prototypes. In order to increase the usage of this measure in organizational settings, researchers may work on shortening the refined explicit ILTs measure in other samples by adapting strategies that are used to capture the essence of the leader prototype and leader antiprototype scale. For example, only ILTs items with a mean above or below one standard deviation of the scale mean are retained (Epitorkapi & Martin, 2004; Gerstner & Day, 1994; Lord et al., 1984).

To refine the implicit ILTs measures, researchers could develop implicit measures to assess the Malevolence, Charisma, Social Awareness, and Sensitivity traits that represent the factor structure of the refined explicit ILTs measure. These studies would help establish validity evidence for the refined explicit ILTs measure and allow for a comparison between explicit and implicit measures. Consequently, the explicit and implicit ILTs measures can be compared in terms of their impact on leadership ratings (e.g., Meindl, 1995) and their predictability to dyadic relations and organizational outcomes (e.g., Epitorkapi & Martin, 2005; Lord & Maher, 1993).

Implications for Organizational Practices

Consistent with research of ILTs as a source of bias in leadership measurement (e.g., Bass & Avolio, 1989; Eden & Leviatan, 1975), this study supported the influence of raters' ILTs on leadership ratings, at least when the explicit ILTs measure was used. Fortunately, not all leadership perceptions were influenced by raters' ILTs. For leader development,

organizations should choose measures that are free of or less sensitive to raters' ILTs when assessing leader behavior. Since the impact of ILTs may go beyond leader behavior measures (Rush et al., 1977), many commonly used instruments for organizational behavior should be further studied for a potential influence of raters' ILTs. Indeed, it becomes common to evaluate leadership effectiveness and outcomes using subjective ratings from multiple sources (e.g., 360 degree feedback, Atwater, Brett, & Charles, 2007). The biasing effect of ILTs on leadership ratings may discount an organization's ability to make effective decisions for leader development and leadership development (Day & Zaccaro, 2007).

Besides the careful selection of leadership measures, other strategies could be used to reduce the potential biasing effect of ILTs on leadership measurement. One strategy is to incorporate ILTs to rater training programs. This would allow raters to be aware of their ILTs and to have more realistic expectations and more accurate ratings of their leaders (Schyns & Meindl, 2005). Another possibility is to use survey formats that are less affected by raters' ILTs in assessing leader behaviors. For instance, Bass and Avolio (1989) suggested the use of the forced ranking format over the graphic rating format.

Contrary to the biasing role of ILTs, recently ILTs have been considered a basis for interpreting leadership phenomena (Lord & Maher, 1993), and their ability to explain organizational outcomes has been widely identified. For example, Lord et al. (1984) found that perceivers' knowledge structure about leadership explained leadership emergence and had influences on leaders' behaviors. Epitropaki and Martin (2005) evidenced that the closer the match between employees ILTs and their perceived behaviors of managers, the better the

quality of leader-member exchange. The congruence between subordinates' ILTs and the behaviors of their leader had indirect effects on employee attitudes and well-being through leader-member exchange. Additionally, researchers in the GLOBE (House, et al., 1999) project asserted that many of cultural differences in leadership practices stemmed from implicit leadership beliefs held by members of different national cultures and further provided advice for expatriate leaders to maximize performance according to culturally endorsed ILTs (Javidan, Dorfman, de Luque, & House, 2006).

Since leadership resides in the eye of the beholder and ILTs serve as sensemaking heuristics in forming leadership perceptions (e.g., Meindl, 1995), organizations could incorporate ILTs into several socialization processes in the workplace. For instance, companies can design leadership development programs with a focus on informing leaders about their followers' ILTs and increasing leaders' awareness of the important role of ILTs (Epitropaki & Martin, 2004). This practice would acknowledge an active role of followers in the leadership process and enhance leadership development that emphasizes the development of social capital as an organization, rather than individual-based human capital that traditional leader development is oriented toward (Day, 2000). By knowing followers' ILTs, leaders would be able to predict how followers would interpret and respond to certain behaviors (Lord & Maher, 1993; Offermann et al., 1994). As a result, leadership effectiveness and followers' satisfaction with leaders and/or jobs could be enhanced. Besides exploring followers' ILTs, the examination of leaders' ILTs would help organizations predict and explain individuals' leadership styles. Organizations could also train leaders and/or

followers to acquire organizationally accepted leadership prototypes that would facilitate the achievement of organizational goals (Epitropaki & Martin, 2005; Meindl, 1995).

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APPENDICES

Appendix A

Items in the Explicit ILTs Measure

Subscale	Attribute		
Offermann, Kennedy, and Wirtz's (1994) ILTs Scale			
Sensitivity (8)	Understanding	Sincere	Compassionate
	Helpful	Sensitive	Warm
	Sympathetic	Forgiving	
Strength (2)	Strong	Bold	
Dedication (4)	Motivated	Dedicated	Hard-working
	Goal-oriented		
Intelligence (6)	Intelligent	Clever	Knowledgeable
	Educated	Wise	Intellectual
Charisma (5)	Charismatic	Enthusiastic	Inspiring
	Energetic	Dynamic	
Attractiveness (4)	Well-dressed	Well-groomed	Attractive
	Classy		
Masculinity (2)	Masculine	Male	
Tyranny (10)	Domineering	Pushy	Dominant
	Manipulative	Conceited	Selfish
	Loud	Power-hungry	Obnoxious
	Demanding		

Subscale	Attribute		
	House, et al.'s (1999) CLT Scale[a]		
Integrity (4)	Honest	Sincere	Just
	Trustworthy		
Charisma 1: Visionary (4)	Foresight	Prepared	Anticipatory
	Plans Ahead		
Charismatic 2: Inspirational	Positive	Morale Booster	Motive Arouser
	Enthusiastic		
Team 2: Team integrator (4)	Communicative	Team Builder	Informed
	Integrator		
Autonomous (4)	Individualistic	Independent	Autonomous
	Unique		
Procedural (4)	Ritualistic	Formal	Habitual
	Procedural		
Status consciousness (2)	Status-conscious	Class-conscious	
Self-centered (4)	Self-centered	Nonarticipative	Loner
	Asocial		
Conflict inducer (3)	Normative	Secretive	Intragroup
Face saver (3)	Indirect	Avoids	Evasive
Malevolent (4) (Team	Hostile	Dishonest	Vindictive
	Irritable		

Note. Numbers in paraphrases refer to the number of items in the dimension. Due to two redundant items "enthusiastic" and "sincere," a total of 79 leader attributes was included in the explicit ILTs measure.

[a]Only 40 items from House, et al.'s (1999) CLT Scale were included in this study.

Appendix B

Leader Attribute Stimuli Used in Implicit ILTs Measures (GNATs)

Attribute Label	Attribute Stimulus
Sensitivity	Sincere, Compassionate, Sensitive, Sympathetic
Dedication	Motivated, Dedicated, Hard-working, Goal-oriented
Intelligence	Intelligent, Clever, Knowledgeable, Wise
Charisma	Enthusiastic, Inspiring, Energetic, Dynamic
Tyranny	Domineering, Pushy, Conceited, Power-hungry

Note. Distracter words are Strong, Classy, Bold, Well-dressed, Well-groomed, Attractive, and Masculine.

Appendix C

Demonstration of Implicit ILTs Measures

Screen 1:

First please write four leader roles, one word for each. Your answers would be specific roles (e.g., sister, teacher).

Leader Role 1:

Leader Role 2:

Leader Role 3:

Leader Role 4:

Next

Screen 2:

Please write four non-leader roles. Your answers would be specific roles (e.g., sister, teacher). Do not write the same role you wrote in the previous question.

Non-Leader Role 1:

Non-Leader Role 2:

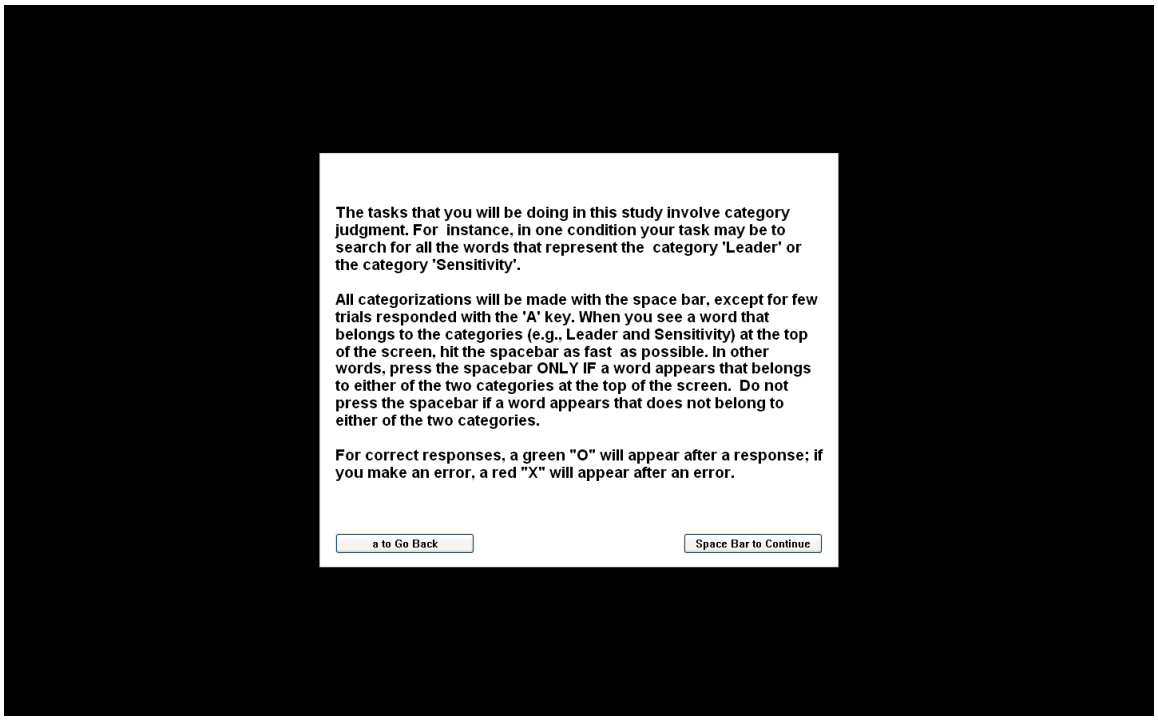
Non-Leader Role 3:

Non-Leader Role 4:

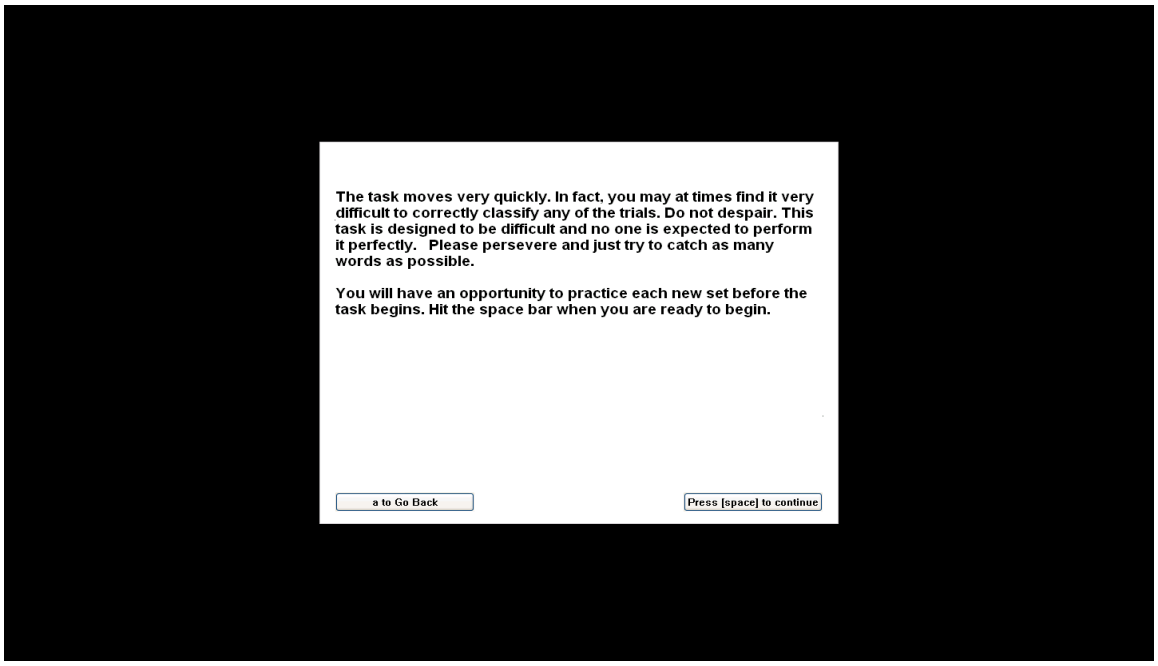
Back Next

Screen 3: Instructions

Screen 4: Instructions continued

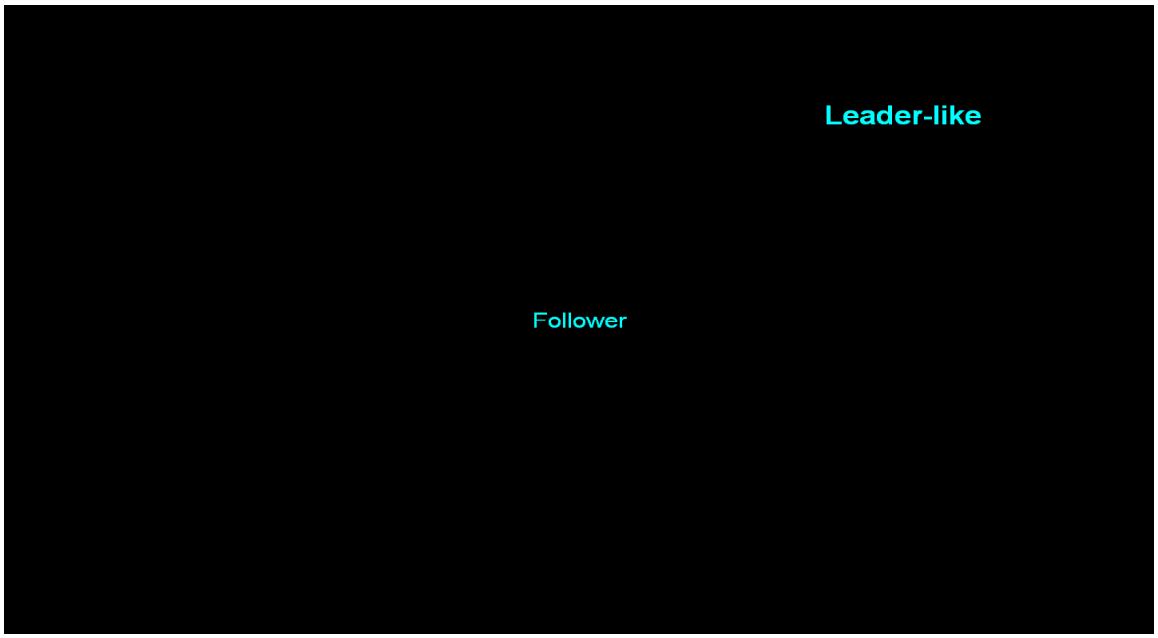


Screen 5: Instructions continued

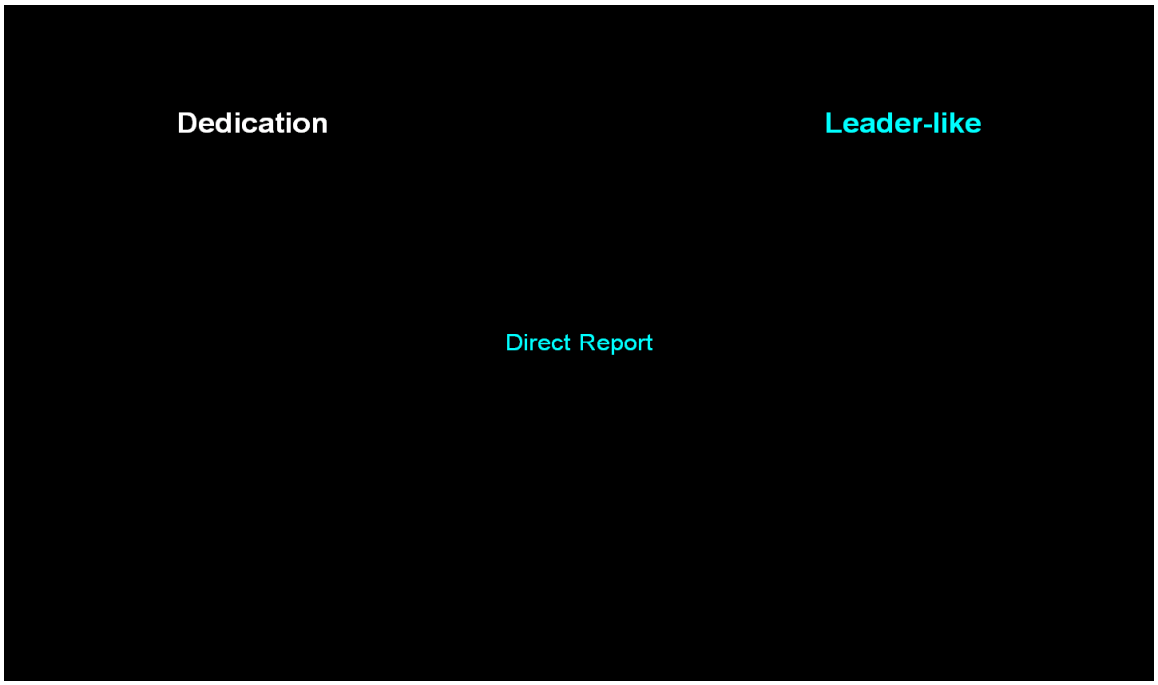


Screen 6:

Screen 7:



Screen 8:



Appendix D

Measures of Leadership Perceptions

Instructions for the Measures of Leadership Perceptions

The following list consists of items that may be used to describe behavior of your immediate supervisor. Each item describes a specific kind of behavior, but does NOT ask you to judge whether the behavior is desirable or undesirable. This is NOT a test of ability. It simply asks you to describe, as accurately as you can, the behavior of your immediate supervisor.

Note: You should consider your immediate supervisor to be the person who you feel has the most control over your daily work activities.

The term, "*group*" as employed in the following items, refers to a department, division, or other unit of organization which is supervised by the person being described.

The term "*members*," refers to all the people in the unit of organization which is supervised by the person being described.

Item for Perceived Leader Fit

Think about your immediate supervisor and indicate the extent to which you agree or disagree with each item.

Response options: 1) Strongly Disagree, 2) Disagree, 3) Neither Agree nor Disagree, 4) Agree, 5) Strongly Agree

- My immediate supervisor fits my image of a leader

Items for the Leader Behavior Description Questionnaire (LBDQ; Halpin, 1957)

Think about your immediate supervisor and indicate how often your immediate supervisor exhibits each behavior. My immediate supervisor …

Response options: 1) Never, 2) Seldom, 3) Occasionally, 4) Often, 5) Always

- Does personal favors for group members. [a]
- Makes his/her attitudes clear to the group. [b]
- Does little things to make it pleasant to be a member of the group. [a]
- Tries out his/her new ideas with the group. [b]
- Is easy to understand. [a]
- Rules with an iron hand. [b]
- Finds time to listen to group members. [a]
- Criticizes poor work. [b]
- Speaks in a manner not to be questioned. [b]
- Keeps to himself/herself. [a] (reversed coded item)
- Looks out for the personal welfare of individual group members. [a]
- Assigns group members to particular tasks. [b]
- Schedules the work to be done. [b]
- Maintains definite standards of performance. [b]
- Refuses to explain his/her action. [a] (reversed coded item)
- Acts without consulting the group. [a] (reversed coded item)
- Backs up the members in their actions. [a]

- Emphasizes the meeting of deadlines. [b]
- Treats all group members as his/her equals. [a]
- Encourages the use of uniform procedures. [b]
- Is willing to make changes. [a]
- Makes sure that his/her part in the organization is understood by all group members. [b]
- Is friendly and approachable. [a]
- Asks that group members follow standard rules and regulations. [b]
- Makes group members feel at ease when talking with them. [a]
- Lets group members know what is expected of them. [b]
- Puts suggestions made by the group into operation. [a]
- Sees to it that group members are working up to capacity. [b]
- Gets group approval in important matters before going ahead. [a]
- Sees to it that the work of group members is coordinated. [b]

Note. [a]The Consideration items in the LBDQ (Halpin, 1957). [b]The Initiating Structure items in the LBDQ (Halpin, 1957).

Items for the Conger-Kanungo Charisma Scale (CKS; Conger & Kanungo, 1998)

Think about your immediate supervisor and indicate <u>how characteristic</u> each item describes him or her. My immediate supervisor …

Response options: 1) Not at all characteristic*, 2)* Slightly characteristic*, 3)* Moderately characteristic*, 4)* Characteristic*, 5)* Extremely characteristic

- Is an exciting public speaker. [a]
- Readily recognizes constraints in the physical environment (technological limitations, lack of resources, etc.) that may stand in the way of achieving organizational objectives. [b]
- Shows sensitivity for the needs and feelings of the other members in the organization. [c]
- Often incurs high personal costs for the good of the organization. [d]
- Consistently generates new ideas for the future of the organization. [a]
- Engages in unconventional behavior in order to achieve organizational goals. [e]
- Readily recognizes constraints in the organization's social and cultural environment (cultural norms, lack of grassroots support, etc.) that may stand in the way of achieving organizational objectives. [b]
- Often expresses personal concern for the needs and feelings of other members in the organization. [c]
- In pursuing organizational objectives, engages in activities involving considerable personal risk. [d]
- Has vision; often brings up ideas about possibilities for the future. [a]
- Uses non-traditional means to achieve organizational goals. [e]
- Provides inspiring strategic and organizational goals. [a]

- Recognizes the abilities and skills of other members of the organization. [b]
- Often exhibits very unique behavior that surprises other members of the organization.[e]
- Is entrepreneurial; seizes new opportunities in order to achieve goals. [a]
- Is inspirational; able to motivate by articulating effectively the importance of what organizational members are doing. [a]
- Recognizes the limitations of other members of the organization. [b]
- Readily recognizes new environmental opportunities (favourable physical and social conditions) that may facilitate achievement or organizational objectives. [a]
- Influences others by developing mutual liking and respect. [c]
- Takes high personal risks for the sake of the organization. [d]

Note. [a]The Strategic Vision and Articulation items. [b]The Sensitivity to the Environment items. [c]The Sensitivity to Member Needs items. [d]The Personal Risk items. [e]The Unconventional Behavior items.

Items for Perceived Leader Influence (Items were developed for the present study.)
Think about your immediate supervisor and indicate the extent to which you agree or disagree with each item.

Response options: 1) Strongly Disagree, 2) Disagree, 3) Neither Agree nor Disagree, 4) Agree, 5) Strongly Agree

- My group's performance can be partially attributed to my immediate supervisor's behavior and effort.
- My immediate supervisor has influences on my group's success.
- My immediate supervisor has influences on my individual performance.