

Employing an Implicit Task to Measure the Effects of Contextual Constraints on Perceptions of  
Leadership

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## **ABSTRACT**

A laboratory experiment was conducted to test the effects of follower behaviors (passive or active) and affect (positive or negative) on leadership perception within the context of an implicit association task (IAT). Individuals watched either a positive or negative affect inducing video, were placed in a leader role, and were asked to read a brief scenario detailing the behavior of their followers. The results indicated that: 1) active follower behavior information activated leadership perceptions that reflect an implicit preference for Visionary Leadership, and 2) positive affect activated leadership perceptions that reflect an implicit preference for Visionary Leadership. It was hypothesized that there would be an interaction between follower behavior and leader affect such that negative affect would lead to more detailed follower behavior information processing and therefore follower behavior would have stronger effects on leadership perceptions. The interaction was not significant; however the main effects provide support for the Connectionist Model of Leadership, such that contextual constraints do influence perceptions of leadership. Limitations and future research directions are discussed.

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## Chapter 1 – Introduction

A vast majority of leadership research has been specifically focused on leader traits and leader behaviors but researchers seem to be realizing that a fuller understanding of the leadership process requires that we investigate both leader and follower behaviors as they are affected by the other (Hollander and Julian, 1969; Brown, 2013). Leadership is a dynamic system involving leaders (or leading) and followers (or following) interacting together in context (Hollander, 1992a; Lord et al., 1999; Padilla et al., 2007; Shamir, 2012; Uhl-Bien & Ospina, 2012), and as such is a behavioral and perceptual social construct. It is co-created in the social interactions between leaders and followers (DeRue and Ashford, 2010; Uhl-Bien, Riggio, Lowe & Carsten, 2013; Shondrick & Lord, 2010). Fundamentally, the social scientific examination of leadership focuses on understanding how the behavior or actions of one individual can influence the behavior or actions of a second individual. Behavior, whether it is a leader's or a follower's, does not simply occur; instead behavior is proximally determined by intermediary cognitive processes. Information-processing approaches focus on these cognitive processes, attempting to discern how individuals perceive and use information in order to better understand how leaders and followers function and adapt to their current context (Lord & Maher, 1991). Thus, information-processing is integral to the leadership process.

Lord and colleagues (Lord, 1977, 1985; Lord & Alliger, 1985; Lord, Foti, & de Vader, 1984) theorized **all** individuals develop leadership schemas, called Implicit Leadership Theories (ILTs) (Cantor & Mischel, 1977; Rosch, 1977; Lord et al., 1984; Epitropaki & Martin, 2004). ILTs are based on cognitive categorization, an automatic process described by Rosch (1978), where individuals categorize the vast and overwhelming amounts of information they are constantly flooded with, into schemas. Repeated interactions and experiences with leaders, or as

a leader, result in the slow development of specific leader prototypes which are representative of the expectations and behaviors associated with leadership, (Epitropaki & Martin, 2005; Lord & Maher, 1991; Lord et al., 1984, Van Gils et al., 2010). Derived as a symbolic-level information processing theory, leadership categorization theory assumes prototypes are static, stable entities associated with specific attributes (a.k.a. symbols) (Lord et al., 1984; Offermann et. al, 1994; Epitropaki & Martin, 2004). Though leadership categorization theory provided strong groundwork in understanding information processing and leadership perception there are recognized limitations to the underlying symbolic framework. Leadership categorization theory suggests there are a finite number of schemas that can account for different types of leaders but they are not flexible and not economical (Hanges, Lord and Dickson, 2000).

Recent cognitive research suggests that categories can be quite dynamic and can be generated *in the moment*. Derived from connectionist architecture, the Connectionist Model of Leadership purports the mind is composed of connectionist networks of neuron-like processing nodes and cognition exists as a dynamic phenomenon where nodes communicate and incorporate new sources of information about leaders (Lord, Brown, Harvey, & Hall, 2001). Meaning still stems from the prototype, but only once the prototype emerges from the pattern of activated nodes across a single network (Thagard, 2012). The connectionist model of leadership suggests perceptions are generated on the fly, unconsciously, in order to accommodate for context (Hanges et al., 2000; Lord et al., 2001; Brown 2013).

Research has primarily focused on how followers process information in forming leadership perceptions. However, not only followers but leaders have perceptions of leadership (Festekjian, Tram, Murray, Sy, & Huynh, 2014). A fundamental part of the leadership process is how leaders process information, in their environment, and how that information affects the

emergence of expectations associated with leadership, or activation of ILTs. Researchers have suggested that a leader's ILTs are predictive of their in-role leadership behaviors which, in turn, influence leader and follower effectiveness (Wofford & Goodwin, 1994). Thus it is important to understand how context influences ILT activation and specifically understand how context may influence a leader's ILT activation.

There are known contextual variables which influence activation of the ILT, such as race (Rosette, Leonardelli, and Phillips, 2008; Sy et al, 2010; Festekjian et al, 2014), gender (Scott and Brown, 2006) and task engagement (Foti, Knee, & Backert 2008) and there are any number of contextual factors which may influence activation of the ILT (such as organizational culture, emotional arousal, identity, etc.). The focus of the current research is on two contextual variables, follower behavior and leader affect.

From a leader's perspective, one of the most important pieces of the leadership process is the follower. Followers, naturally, do not prescribe to a "one size fits all" behavioral type (Kelley, 1988; 1992; 2008; Carsten et al., 2010). Researchers emphasize that followers potentially influence leadership perceptions and leaders respond and are influenced by their followers' behaviors (Oc and Bashshur, 2013). It is important that the effects of follower behavior on leadership perception are investigated. A second factor, affect, is dynamic and it is known that affect influences how information is processed. Affect potentially influences how much processing occurs and how much contextual information is attended to (Forgas, 1987; 1995; Schwarz & Bless, 1991). Therefore affect may influence how leaders process information in forming leadership perceptions.

The purpose of this study is to investigate the influence of two contextual factors on perceptions of leadership. If leadership truly is a process determined not solely by leaders but

also by followers then follower behavior has the potential to influence a leader's leadership perception (Festekjian et al., 2014). Thus, the first purpose of this study is to investigate the influence of follower behavior on a leader's activation of ILTs. A second factor, largely ignored in leadership research is affect. The interaction between affect and information processing and resulting outcomes on decision making and cognition has been widely debated. What is known however, is that affect is information in and of itself, constantly influences the cognitive processing of information (Forgas, 1995) and therefore influences the leadership perception process. The second purpose of this study is to investigate the influence of affect on a leader's activation of ILTs. When individuals engage in information processing their affect may influence the types of information attended to unconsciously by perceivers.

Although leaders may have a stable ILT, researchers have demonstrated that ILTs are context dependent and can be activated dynamically. Wofford and his colleagues (Goodwin, Wofford, & Boyd, 2000; Wofford, Joplin & Comforth, 1996) have directly assessed whether leader schema activation shifts with differing perceptions of subordinates. Leaders were randomly informed that the subordinate was either performing very poorly or quite well and then asked a series of behavioral intention items. Leaders of poor performing subordinates intended to use more directive behaviors, whereas leaders of good performing subordinates intended to use more empowering behaviors.

Affect has been recognized as an important part of leadership and leadership perception (Brown & Keeping, 2005). Even though researchers have studied and know how affect influences information processing, there is little research on the influence of the leader's affect on the leader's perceptions of leadership (Medvedeff & Lord, 2007; Shondrick et al., 2010). The Affect Infusion Model (AIM) suggests individuals will use the simplest information processing

strategy necessary to make a response or judgment and affect unconsciously influences what strategy will be used. Affect infusion can occur when people engage both in heuristic processing and in detailed processing. Oftentimes, during heuristic processing, when individuals experience positive affect they unconsciously maintain, “since I am feeling good, I must like this” (Schwarz & Bless, 1991; Schwarz & Clore, 1983; Forgas, 1987). During substantive and detailed processing, affect primes judgments via attention and information retrieval.

Following from the Affect Infusion Model (AIM), researchers argue that perceivers in a positive affective state exhibit little processing of complex information and an increased reliance on heuristics or schemas (Forgas, Burnham, & Trimboli, 1988; Forgas, 1987; 1995; Schwarz & Bless, 1991; Elsbach & Barr, 1999). Researchers account for this effect in numerous ways, but one possible explanation is that positive affect parallels good events experienced by individuals (Mackie & Worth, 1989). As a result, individuals unconsciously rely on schemas, since “all is right in the world”. In contrast, negative affect usually parallels bad events and as a result, “all is not right in the world” and individuals unconsciously participate in more complex information processing.

More specifically, affect has the potential to influence leadership perceptions via affect infusion. Positive affect may increase an individual’s reliance on their stable leadership prototype whereas negative affect may decrease an individual’s reliance on their stable leadership prototype. However, both follower behaviors and affect are integral to the leadership process and therefore have dynamic influences on the connectionist model of leadership. Negative affect increases systematic information processing and the result is an increase in the individual’s unconscious reliance on information in their environment to contextualize judgment and decision making. In the current research, follower behavior is information provided to the

leader and affect should influence the time attended to follower behaviors via affect infusion (Bless et al., 1996; Medvedeff & Lord, 2007).

The main purpose of this research is to expand knowledge concerning the dynamic activation of ILTs by exploring two contextual factors: follower behavior and affect. However, it is important to recognize ILTs are activated unconsciously. Leadership perception is an implicit process. ILTs predominantly have been measured using surveys, and self-report methodology, which allow individuals to think and reflect upon their responses. It is becoming quite clear that researchers are interested in both explicit (historically) and implicit measures of ILTs (Dinh & Lord, 2012). Implicit measures, like the implicit association task (IAT), diminish the effects of response distortion and though survey measures and explicit measures of ILTs provide some information about perceptions of leadership, an implicit measure may allow for a fuller understanding of how context influences ILTs because implicit measures capture processes outside an individual's awareness or conscious thoughts while the current surveys capture feelings within an individual's conscious thoughts (Uhlmann et al, 2012). Essentially, implicit measures capture implicit processes by not allowing individuals the time to think about their responses and by using a task that indirectly measures the construct. Implicit processes operate at the perceptual, cognitive level and are based on associations that are grouped together by similarity of the stimulus cues (Strack & Deutsch, 2004). Therefore, a final purpose of this study is to explore the contextualization of ILT activation via an IAT and explore it as a new path for measurement of ILTs.

The contribution of this study is two-fold. First, I propose that follower behavior and affect will influence perceptions of leadership and that affect will influence the degree to which follower behavior information will be unconsciously attended to by leaders' who all maintain the

same underlying leadership prototype. Two follower typologies (passive and active) were used to manipulate the type of follower behaviors experienced by the leader (perceiver) and affect was conceptualized as positive or negative and induced with a video manipulation. By exploring the contextualization of leadership perception this study builds on an existing literature, which supports that perceptions of leadership, both follower's and leader's, are context dependent and dynamic. The connectionist model of leadership suggests variability in leadership perception can be accounted for by contextual sensitivity and researchers have already shown that perceptions of leadership vary by race (Sy et al., 2010) by gender (Scott & Brown, 2006), and by task engagement (Foti, Knee, & Backert 2008). Secondly, research exploring the contextualization of leadership perceptions has primarily used survey tasks to measure the ILT but this study contributes to the literature by answer the call for more dynamic and implicit measures of ILTs. Perceptions of leadership were measured using an IAT, a measure specifically designed to measure an individuals' automatic associations between categories (e.g. visionary leadership and authoritarian leadership) and attributes (e.g. positive and negative; Greenwald & Banaji, 1995).

## **Chapter 2 – Literature Review**

### **2.1 – ILTs and Leader Prototypes**

People exist within an ever changing world; everyday people are inundated by complex data. They can encounter any number of new situations: new people, new environments, new things, the list continues indefinitely. As a result, people develop cognitive structures, called schemas, to deal with the continual influx of new and old information. Schemas are knowledge structures that contain typical characteristics of categories. In the context of leadership, people develop leader schemas, called Implicit Leadership Theories (ILTs) to perceive and make

attributions about potential leaders (Cantor & Mischel, 1977; Rosch, 1977; Lord et al., 1984; Epitropaki & Martin, 2004).

Early study of ILTs focused on prototypes used as heuristic devices to recognize leadership. Both leaders and followers rely on stable internal mental representations (Lord, et al. 1984) in the form of a prototype or symbolic architecture to guide our perceptions of leadership (Dinh, Lord, & Hoffman, 2014). Rosch's (1978) research describes the nature of cognitive categories. Categories tend to develop around a prototype, which is the most abstract yet representative example of a category. Prototypical features are widely shared among category members, but they are much less common in contrasting categories. For this reason, prototypical features are useful cues regarding category membership. A perceiver observes and compares a potential leader's behaviors to that of their leader *prototype* (Lord & Maher, 1991; Shondrick & Lord, 2010). Researchers have identified several traits associated with leader prototypes: intelligence, sensitivity, dedication, tyranny, charisma, attractiveness, strength, and masculinity (Lord et al., 1984; Offermann et. al, 1994; Epitropaki & Martin, 2004). The majority of individuals hold a prototype of leaders as highly sensitive, intelligent, dedicated and low on tyranny. This pattern of traits associated with leadership has been labeled as prototypical (Bray, Foti, Thompson, & Will, 2013; Foti, Bray, Thompson, & Allgood, 2013). Three other patterns of traits are associated with perceptions of leadership. They are: laissez-faire, autocratic, and anti-prototypical leader styles; the last of which is essentially the opposite of the prototypical pattern. In general, an ILTs content is considered consistent and stable (Lord et al., 1984; Epitropaki & Martin, 2004). However, there is already research suggesting otherwise. Researchers have investigated at least three contextual variables and their effects on the leader prototype: Leader race (Sy, Shore, Strauss, Shore, Tram, Whiteley, & Ikeda-Muromachi, 2010),

culture (Nishii, Gelfand, Ang, Lange, and Taveesin, 2004) and leader gender (Foti, Knee, & Backert, 2008; Scott and Brown, 2006) all impact the leader prototype.

## **2.2 – Connectionist Models**

Recently, researchers have proposed a neural network cognitive architecture, or connectionist model (Thagard, 2012). Connectionist models of leadership emerged in response to leader categorization theory, the classic symbolic process by which the external world is simplified into high-level relational structures called categories. Connectionist theorists argue the mind is composed of simple nodes connected within a neural network where cognition is an emergent and dynamic phenomenon. Nodes are concepts learned over time and through experience with leaders. Information is encoded via node to node connections, rather than rules (Thagard, 2012). Generally speaking, connectionist cognitive architecture is comparable to networks of neurons in the brain. Figure 1 displays a simplified “leader” network with nodes of dominant, decisive, understanding, sensitive, and dedicated, connected via positive or negative connections, like synapses (Thagard, 2012). In Figure 1, the excitatory links represent positive constraints or connections that “hang” together such as sensitive and dedicated, and the inhibitory links represent negative constraints on connections which do not go together, such as sensitive and dominant.

Proponents of connectionist models of leadership suggest that each time a leader encounters some new situation or new follower the experience shifts the pattern of critical nodes within the network by spreading activation through the network (Lord et al., 2001; Shondrick & Lord, 2010; Dinh et al., 2014; Thagard, 2012). In effect, leadership perceptions are generated in the moment in order to accommodate the situation (Hanges, Lord, & Dickson, 2000; Lord, et al., 2001). Thus, ILTs can be viewed from a connectionist perspective that suggests encountering a

workplace situation (new context) potentially reconstructs the weight placed on certain leader behaviors or traits within the prototype resulting in altered perceptions of leadership (Lord et al., 2001; Dinh et al., 2014).

Within the connectionist architecture, each leader behavior or trait (visual, semantic, etc.) is considered a concept or node, the collection of which creates a parallel distributed processing constraint network (PDP). For a node to be activated, like a neuron, it must reach an activation threshold, which results from environmental and contextual inputs (Marcus, 2001). There are positive inputs into the PDP network, in which behaviors are present within the environment. There are also negative inputs in which a behavior is not present within the environment. When a node fires it activates similar concepts within the same knowledge structure or network and spreads activation among nodes based on their excitatory and inhibitory inputs. The nodes corresponding to the feature will take on a weighted value which represents how well the input fit the node's internal criteria (McClelland and Rumelhart, 1986). In Figure 1, characteristics of followers could act as a contextual cue activating a leaders' ILT activation. In the figure there are solid lines indicating excitatory links or positive paths and dotted links indicating inhibitory links or negative paths. When a follower demonstrates tardiness, the leader's decisive node may be activated. When this occurs, there is potential for the dominant and understanding nodes to be excited. However unlike dominant and understanding, sensitive and dedicated have little resemblance to decisiveness and are inhibited by the follower's tardiness.

McClelland and Rumelhart (1986) and the PDP Research Group suggests that nodes do not act sequentially and are not rule governed, but rather excite and inhibit one another in a parallel fashion, at the same time. Activation will continue to spread until it settles into an optimal state, where as many possible constraints are satisfied, all nodes reach a state of rest, no

nodes are sending excitatory or inhibitory messages to other nodes within the network, and priority given to the strongest constraints. If for example, using the network in Figure 1 again, the follower shows little remorse towards the manager then the node for dominant may be highly activated, while the nodes for sensitivity and dedicated will have low activation.

The result is a dynamic representation of the networks' solution (Thagard, 2012). In connectionist models, a prototype is an abstract conceptualization of a concept and the underlying content within the leader network. The traits within the prototype are learned over time and through experiences with and as a leader. It is the activated network solution that gives meaning to that prototype. Activation within a network occurs among nodes. Dynamic representations emerge, at the moment needed from the interaction of large numbers of nodes working in concert with one another.

Lord et al. (2001) constructed a three level connectionist model of leadership schema activation, or ILT activation. The first level occurs when behaviors are displayed by a potential leader. The second level is the leadership prototype, an abstract conceptualization of the traits most typically associated with leaders. It is at the second level of the Lord et al. (2001) model where traits are interconnected. Contextual constraints exist at the third level where they serve to impact perceptions of a leader. Context can be defined through certain social and environmental settings or tasks as it provides "situational opportunities and constraints that affect the occurrence and meaning of organizational behavior as well as functional relationships between variables" (Johns 2006, p. 386). It is at this third level that networks are at their most dynamic. A connectionist model of implicit leadership theory suggests that weight placed on nodes within the network of leader concepts can be altered based on node to node connections; when some new contextual factor is experienced, the weighted connections between nodes are adjusted and a

dynamic representation of leader emerges (Hanges, Lord & Dickson, 2000; Hanges, Dorfman, Shteynberg, & Bates, 2006; Lord et al., 2001).

### **2.3 – Support for the Connectionist Model of Leadership**

The connectionist model of leadership provides the theoretical foundation necessary to understand the contextualization of ILTs wherein leadership perceptions depend upon activation of nodes within the network of leader traits (Lord et al., 2001). Since researchers posited ILTs are dynamic and dependent upon context, more and more researchers have moved towards investigating ILTs from a connectionist perspective and researchers have explored several contextual variables with the potential to shape leadership perceptions (Hanges et al., 2000; Lord et al., 2001).

Based on the connectionist model of leadership, Sy et al. (2010) examined race and leadership and demonstrated that activation of nodes within the leader network is affected by the interaction of race and occupation. Race exists at the contextual level or third level of Lord, et al.'s (2001) model and Sy and colleagues' race-occupation fit study supports the connectionist model of leadership. When individuals were asked to make leadership comparisons between Caucasian Americans and Asian Americans, Asian Americans were considered as less ideal leaders than Caucasian Americans. However, leadership perceptions of Asian Americans were higher when race–occupation was a good fit (engineer position) than when race–occupation was a poor fit (sales position). Finally, the research demonstrated “that race effects leadership perception through the activation of prototypic leadership attributes (i.e., implicit leadership theories)” (p.902). Festekjian and colleagues (2014) supported and expanded upon the findings of Sy by exploring self-directed or intrapersonal leadership perceptions. They developed a six items specifically designed to measure intrapersonal leadership perceptions, for example “I feel

confident about my ability to be a good manager”. This study again, explored racial differences between Asian Americans’ and Caucasian Americans’ leadership perceptions and found that not only do others view Asian Americans as less prototypical leaders but they also view **themselves** to be less prototypical. Sy, Festekjian, and colleagues demonstrated race is a contextual factor which influences perceptions of leadership but their results also point to a factor which has the potential to influence perceptions of leadership, culture. The data used in the above study came from participants in a Western country, where the prototypic race is Caucasian.

Various studies have examined culture as a factor with the potential to influence the activation of ILTs. Researchers examined the structure of the leadership prototype across cultures from the connectionist perspective and have found initial support for cultural effects. Hanges et al. (2001) examined leadership schema structure in the United States, Germany, and Mexico using similarity ratings of 17 universal leadership attributes (e.g. collaborative, plans ahead, dynamic). The researchers used network software to measure differences in participants’ leadership prototype structure. They held the content of the network constant and found the structure differed among the three countries. Moreover, the most valued attributes (most strongly activated) in these prototypes were related to societal cultural values. For example “visionary” was most central in individuals’ networks when they were from mastery oriented societies, “collaborative” was more central in individuals’ networks when they were from egalitarian societies, and “team-builder” was more central in individuals’ networks when they were from more conservative societies.

Nishii et al., (2004) obtained additional support for the relationship between culture and the leadership prototype. They maintained that in individualist societies, like the United States, cognitive consistency is vital in leadership perception. In contrast, in collectivist societies, like

most countries in the Asia, individuals must switch between multiple prototypes depending upon the contextual situation in which the individual is embedded and context may allow the prototypes to be contradictory. Their assumptions were tested with samples from the United States, Germany, Singapore, and Thailand. Participants in their study provided similarity ratings across leadership attributes. The results supported that leadership prototypes in the individualist cultures were more internally consistent and displayed more coherence than the prototypes in the more collectivist cultures. In addition, participants also had more central leadership attributes if they were from a collectivist culture, meaning they had many leadership attributes that had many interconnected links and were strongly activated. The results corroborate the Hanges et al. (2001) study by suggesting when the traits within the leadership network are held constant, culture can shift the structure of the network by the activation of different traits.

Leader perceptions are subject to contextual constraints due to gender biases (Hogue & Lord, 2007). Foti, Knee and Backert (2008) collected data on dyads and used a nonlinear approach to explore leadership perceptions. Foti and colleagues found that the gender structure between the emerging leader and perceiver impacted leader perceptions such that female emergent leaders were less likely to be perceived as leaders when the perceiver was male (Foti et al., 2008; Knee and Foti, 2014). Again, this research supports the connectionist model of leadership by demonstrating gender of the follower and gender of the leader influences perceptions of leadership.

Researchers have investigated the impact of personal experiences on leader node activation. Keller (1999; 2003) evaluated how individual experiences with mother and father figures impact perceptions of leadership. Though not a direct test of the connectionist model;

Keller demonstrated that potential leaders are more likely to be perceived as a leader if there are behavior similarities between the perceiver's caretakers and the potential leader.

Researchers have also (Foti et al, 2008; Knee and Foti, 2014) demonstrated that an ILT's stability is affected by very specific situational variables. Researchers examined level of task relevance on leader perceptions. Participants were asked to watch a video of three students debating music file sharing. One student in the video was scripted to act neutral (noncommittal and neutral student leader behaviors). A second student was scripted to act prototypical (against file sharing and prototypical student leader behaviors). The third student was scripted to act atypical (for file sharing and atypical student leader behaviors). The discrimination between students in the videos is important. The prototypical student is cognitively aligned with regard to leader behaviors whereas the atypical student is relevance aligned in regards to the file sharing stance (most participants would agree with and be for file sharing). Participants were asked to endorse a leader and they completed measures assessing their leader networks. Researchers found that individuals, who have a personal stake (in this case, being for file sharing) in the recognition of a leader, are more likely to perceive a leader based on personal belief and not implicit leadership theories. When the personal stake of leadership recognition is low, then individuals will recognize the leader based on cognitive expectations (seeing prototypical student leader behaviors in the video), and not the specific stance or message of a potential leader. Taken together, the studies discussed above provide initial support for the connectionist model of leadership.

Recently, researchers have moved to more implicit examinations of the connectionist framework. Scott and Brown (2006) also demonstrated that gender influences leadership perception by influencing the encoding of leadership behaviors into the underlying neural

network of prototypical leadership traits, suggesting that gender can influence the activation of certain characteristics within the leader prototype. Scott and Brown used a lexical decision task to explore how behaviors and gender prime and influence the encoding of traits, essentially facilitating access to congruent traits and inhibiting access to incongruent traits. They argued the leadership prototype is largely composed of agentic traits, which are incongruent with femininity and their results indicated individuals have a processing disadvantage of agentic traits when the prime is about a woman's leader behavior rather than a man's leader behavior. Scott and Brown's paper provided evidence in support of a connectionist model of leadership by which gender influences the extent to which leadership traits are encoded.

Dinh and Lord (2013) adapted a word-fragment paradigm to evaluate the accessibility of ILTs when primed with scenarios about management. Participants read either a scenario about an effective manager or a scenario about an ineffective manager. In the effective manager condition, participants were more likely to endorse a dedication, sensitivity, strength, dynamism and attractiveness pattern of the leader prototype dimensions. Essentially, Dinh and Lord demonstrated perceived effectiveness of a manager exists as a contextual constraint on perceptions of leadership. Similarly, Snead, Coyle, Diana, and Foti (2013) used a lexical decision task to prime and measure ILTs. Their semantic priming approach provided evidence for a connectionist model of ILTs, demonstrating ILTs may be dynamically accessed as a function of contextual cues.

The connectionist model of leadership emphasizes the influence of context on perceptions of leadership. The above literature and research examples demonstrate the connectionist model of leadership is efficient and effective at describing ILTs and the sensitivity of perceptions of leadership to context. While connectionist models have been around for nearly

30 years (Rumelhart & McClelland, 1986), the application of this model, specifically the application of this model to leadership perception research, has only recently been attempted.

There are a whole host of contextual stimuli with the potential to influence ILT activation. Race, culture, gender, and caretaker experiences are just a small sampling of the potential factors which may influence ILT activation. In addition, there are many ways leadership can be measured and observed. Researchers have only begun to scratch the surface and explore the endless possibilities of more implicit and processing oriented measurement techniques.

#### **2.4 – Indirect Measurement**

The connectionist model provides a cognitive framework by which leadership perceptions are influenced by contextual constraints. Given connectionist models are founded in cognitive theory and exist at a more neural level, it is important for leadership researchers to continue to move toward more complementary measurement paradigms. It is becoming clear that researchers are interested in more implicit measures and process-oriented examinations of implicit theories, (Dinh & Lord, 2012). A criticism of leader perception research is the extant reliance on direct measures, such as surveys (Johnson & Tan, 2009). Most measures of leadership focus on the person rather than specific events wherein leadership exists and researchers have suggested the focus on the person may provide inaccurate measurement of leader behaviors (Hansbrough, Lord, Schyns, 2015). Specific attention paid to event-level examinations of leadership may allow researchers to examine the effects of follower or leader identity, affect, and many other interesting antecedents of perceptions of leadership. In addition there are indirect measures, which are designed to go beyond conscious thought and obtain implicit attitudes and beliefs. It follows then that indirect measures are suited to studying ILTs

because they capture automatic responses and implicit processes more accurately than survey or direct measures of leadership (Uhlmann et al., 2012).

A direct or conscious measure of ILTs may not fully capture implicit processes, and could be capturing biases associated with allowing participants time to reflect upon their answers. Direct measures like self-report surveys which use Likert-type scales to capture feelings towards traits associated with leadership reflect attitudes within one's active consciousness and awareness. Utilizing an implicit measure, researchers can lessen the impact of explicit participant response distortion. Research centered on indirect implicit examinations of leadership perceptions may allow for a more thorough understanding of how behaviors and contexts impact prototypes (Uhlmann et al., 2012).

This is not to say that all implicit measures are made equal and tap the same levels of unconscious thought. Uhlmann et al. (2012) constructed a functional taxonomy of implicit measures. They clustered all available implicit measures into three broad categories: 1) accessibility-based measures, 2) association-based measures, and 3) interpretation-based measures.

Accessibility-based measures evaluate single target activation and are useful when a researcher wishes to determine whether a specific concept is currently activated in a participant's memory. An example accessibility-based measure is a lexical decision task where participants can be primed with a certain attitude or belief and are then asked to indicate whether a string of letters is a word or a non-word. Participants' response reaction times are recorded and faster reaction times indicate that specific content is more accessible, unconsciously. Snead, Coyle, Diana, and Foti (2013) utilized the lexical decision task and semantic priming approach to assess the susceptibility of ILTs to different experiences.

Association-based measures allow researchers to evaluate associative networks.

Association-based measures take indirect measurement one step further by assessing the links between multiple concepts in a participants' memory. An example association-based measure is an implicit association task (IAT) where participants do a sorting task wherein items from two categories (or one category for a single target IAT) share common responses with two attributes. Attributes are often chosen to discern stereotypes or biases about the category(s). Fundamental to association-based measures is the assumption that activation of a single concept leads to activation of similar concepts within the same knowledge structure or network (Greenwald et al., 2002).

Interpretation-based measures capture response tendencies to ambiguous information. An example interpretation-based measure is a thematic apperception test (TAT), in which participants' generate fictional stories from ambiguous information or pictures. Sy (2013) utilized a TAT paradigm to explore IFTs providing researchers with a less biased evaluation of the follower prototype.

Association-based measures, unlike accessibility or interpretation based implicit measures are specifically designed to measure the underlying assumption that the activation of some concept triggers and spreads activation to similar concepts within some underlying knowledge structure or network, and association-based measures are well-suited for studying social cognition and target associations (e.g., implicit attitudes or beliefs, biases, self-efficacy) (Greenwald et al, 1998). A connectionist model of leadership assumes ILTs are activated in the same fashion, such that some contextual factor activates a leader trait that then activates similar and nearby leader traits within a single leader network. Therefore, association based measures are well suited to studying connectionist networks.

## 2.5 – IATs

The focus of this study was to use an association-based measure and more specifically an IAT to explore relative associations between nodes within ILTs. The IAT is a method by which associations among concepts are measured indirectly. A traditional IAT measures the strength of automatic associations between categories (e.g. flowers and insects) and attributes (e.g. pleasant and unpleasant) (Greenwald et al., 1998) and it does this by having participants carry out a task of sorting stimuli and measuring how quickly individuals pair concepts together. There are two critical blocks within an IAT, in which the categories and attributes are paired and their two response options are created: 1) category one with attribute one, and 2) category two with attribute two. For example, Greenwald and his associates paired 1) flowers + pleasant, and 2) insects + unpleasant. Individuals were asked to sort stimuli, which are representative of the flower (e.g. tulip), insects (e.g. beetle), pleasant (e.g. lucky), and unpleasant (e.g. rotten) into the two response options. They reversed the pairings, 1) flowers + unpleasant, and 2) insects + pleasant, in the second critical block. The sorting is timed and a response latency or reaction time difference between the critical response blocks, is calculated, and represents the strength of category-attribute association. The sorting task is easier when the two concepts sharing a response are strongly associated rather than when weakly associated. For example, flowers are generally considered pleasant so it should be easier to sort tulip, when the category, flowers, is paired with the attribute, pleasant. In general, it should take more time to sort stimuli when the category and attribute association is implausible or weak and less time to sort stimuli when the category and attribute association is clear-cut and strong (Nosek et al., 2007). The IAT has been used widely and adapted to explore stereotypes and individual biases. It has the potential to be very useful to leadership researchers.

## **2.6 – Connectionist Model of ILT Activation: The third level**

The purpose of this study is to concentrate on constructs critical to perceptions of leadership. As far back as 1978, Hollander posited that leadership is the interrelationship of: 1) the leader, 2) the follower, and 3) the situation. Hollander recognized that leadership is contextualized by aspects of the leader, follower and the situation. Traits of leaders and how they impact leadership perceptions have been studied extensively and research demonstrates the practical implications of ILTs for workplace outcomes (van Gils, van Quaquebeke, & van Knippenberg, 2009; Epitropaki, Sy, Martin, Tram-Quon, & Topakas, 2013). Followers are widely accepted as hugely responsible and impactful of the leadership process. Affect, as well, plays a central role on perception and cognitive processing. As a result, this study proposes to enhance our understanding of the relationship between leaders and followers, by focusing on how follower behavior (through primed scenario) impacts the leader's perceptions of leadership. Secondly this study is focused on the situation, and more specifically, on affect of the leader, as the perceiver. Essentially, this research examines all three facets of Hollander's (1978) leadership triangle by measuring the leader, via leader ILTs, and manipulating the follower, via follower behavior, and manipulating the situation, the leader's affect.

## **2.7 – The effect of follower behavior on ILT activation**

DeRue and Ashford (2010) propose leadership identity is co-constructed when leaders and subordinates informally claim and grant leader and follower identities. They argue, since leadership is a mutual influence process; social interaction and contextual and environmental factors can lead to shifts in leader and follower identities and leader-follower relationships within an organization. They argue leader-follower relationships will be well-defined and develop quickly when a specific leadership schema is widely shared among organization members and

the formal leader prescribes to those behaviors. Research suggests that leadership and followership are constructed together, over time, and prototypes are likely to differ based on the extent to which leaders and followers believe their expectations are met by the other as well as by themselves (Lord and Maher, 1991; Lord et al., 1984; Van Gils et al., 2010). Furthermore, Oc and Bashshur (2013) argue that followers are not passive participants in the leadership process but rather there is “reciprocity of influence” such followers influence the leadership process. The above research substantiates why follower behavior can potentially influence leader ILT activation: 1) social interaction, contextual, and environmental factors influence leadership relationship, 2) followers are active participants in the leadership process, and 3) perceptions shift based on the degree by which expectations are met by followers. The next important question is how follower behavior may influence perceptions of leadership (Sy, 2010; Carsten, 2010; Shamir, 2010; Lord and Brown, 2004).

There is little research investigating the effects of follower behavior on leadership perceptions, (Carsten, Uhl-Bien, West, Patera, & McGregor, 2010; Engle & Lord, 1997; Epitropaki & Martin, 2005; Sy, 2010; Schyns & Schilling, 2010; Shondrick et al., 2010). However, there is a plethora of research on the transformational versus transactional leadership paradigm, which can be used to supplement an argument for how follower behavior may influence leadership perceptions. In general, transformational or visionary leaders are respectful and encouraging of followers, loyal to their followers and provide an inspiring vision for their followers, while transactional leaders or managerial leaders are supervisors promoting follower compliance through rewards and punishments. Bass noted that transformational leadership is closer to the prototype of leadership that people have in mind when describing their ideal leader and argued that transformational leadership is essentially prototypical leadership. These

researchers argued that transformational leaders expect their followers to have active attributes such as self-reliance, innovativeness, and initiative (Bass, 1985; Conger & Kanungo, 1987; House, 1977), while transactional leaders expect their followers to have attributes such as commitment to goals, expectancy of goal attainment, expectancy of rewards, and need for role clarity (House & Mitchell, 1974). Wofford and Goodwin (1994) theorized transformational and transactional leaders differ in the content of their schema as well as their expectations for followers, which leads to their differing leader behaviors, but that environmental and contextual variables can influence leader cognitions. They called the model the cognitive processing model of leadership and Goodwin, Wofford and Boyd (2000) investigated it further by providing leaders with follower performance feedback. They found that following positive follower performance feedback leaders accessed transformational leadership cognitions (most closely associated with prototypical leadership) and following negative follower performance feedback transformational leaders accessed transactional leadership cognitions (most closely associated with anti-prototypical leadership).

Kelley (1988; 1992; 2008) created a typology of followership which ranged from passive followers (blindly follow whatever the leader dictates) to exemplary active followers (actively engaged participant in organization). Passive followers tend to be uncritical and unproductive unless they are actively managed. They get their job done but cannot be expected to step beyond the role of their job in work situations. These people will tend to follow blindly and if not managed they will engage in very little productive work. Goodwin et al's (2000) research can be applied to follower behavior and leadership perception research. Following from Wofford and Goodwin's cognitive processing model there is support for research suggesting inactive followership precedes transactional leadership perceptions and effective and active followership

precedes transformational leadership perceptions. Using Kelley's distinct follower typologies, passive and active, as a foundation of follower behavior and following Oc and Bashshur's proposition that leaders are influenced by follower behavior the following hypothesis resulted:

*Hypothesis 1.* Leaders primed with active follower behaviors will activate a more prototypical leadership prototype whereas leaders primed with passive follower behaviors will activate a less prototypical leadership prototype.

## **2.8 – The effect of leader affect on ILT activation**

Follower behavior was discussed above, as a contextual variable expected to impact ILT activation. There is a second contextual variable, however, which has the potential to influence ILT activation, affect. There is some debate surrounding the definitions of affect, mood, emotions, etc., (Gooty, Connelly, Griffith, & Gupta, 2010). For the purpose of this study mood or affect, was defined as a low-intensity, longer, and enduring affective state (Frijda, 1994; Gooty et al., 2010). Though affect is less noticeable it none-the-less influences organizational behavior and decision making and therefore affect, rather than emotion, was the focus of this study (Forgas, 1992, 1995; Forgas & George, 2001).

Affect influences judgment (Damasio, 1994) and there are a number of models and theories about affect and information processing that have been researched and supported. Generally, affect and information processing research has revolved around two themes which both suggest that affective experiences have a signaling function. First, affect influences judgments by biasing information processing and retrieval towards information consistent with current affect (Bower, 1981). Essentially, researchers argue affect influences what we think. The second line of research posits that affect influences judgment and decision making by engaging individuals in different thinking strategies (Forgas, 1995). Essentially, researchers

suggest affect shapes how we think (Isbell, Lair, & Rovenpor 2013). In the current study, focus is placed on the latter, which is affect shapes how we think. Two explanations have been advanced and supported and will be discussed further: affect-as-information, and affect infusion.

The affect-as-information model suggests that one's feelings are used as a source of information. Researchers specifically argue that individuals will, when asked to make judgments, unconsciously ask themselves "how do I feel about it" and the person then uses their feelings to advise judgment making (Schwarz and Clore, 1988). In doing so, individuals can misattribute their preexisting affective states as a reaction to some target, unconsciously influencing judgments and decisions about that target. Schwarz and Clore (1983) investigated the affect-as-information model by asking individuals to rate their life satisfaction. Ratings were influenced by the weather such that people provided higher ratings of life satisfaction on sunny days than they did on stormy days. When individuals became aware that the weather influenced their feelings, the weather no longer had value in influencing the life satisfaction judgments. In addition, the affect-as-information model suggests affect informs people about themselves and about the nature of a situation or environment. Individuals are cognitively tuned to handle processing requirements signaled by their affective experiences. Therefore, affect influences processing style.

The affect infusion model (AIM) suggests affect influences individuals as they unconsciously identify the type of information processing necessary for a task or judgment. AIM was developed to be a comprehensive theory explaining the presence and absence of affect infusion into cognition. Forgas (1990) proposed the effects of affect are exacerbated in complex situations demanding substantial cognitive processing. In simpler terms, as situations become more complicated and unanticipated, affect becomes more influential in altering evaluations and

responses. When someone is in a positive mood they tend to rely on a simplified top-down cognitive style, while when in a negative mood they tend to use more energy and employ a more precise, bottom-up, and elaborate or laborious cognitive style (Forgas, 1987; 1995; Schwarz & Bless, 1991; Elsbach & Barr, 1999). Essentially, positive affective experiences guide people towards heuristic processing and judgments. As such, affect-as-information is the primary mechanism by which affect infusion occurs during positive affective experiences, but negative affective experiences will guide people towards more substantive processing strategies and affect will influence information retrieved and attended to.

In support of AIM Frijda (1987) examined affective mood states and found that a person in a negative mood state is more likely to take action to remove the source of the negative mood state and a person in a positive mood state is more likely to ignore such sources. If you place an individual in a negative mood state then that individual appraises the situation as problematic and puts increased cognitive processing towards the problem. If you place an individual in a positive mood state then that individual appraises the situation as secure and safe.

Following the findings of Frijda (1987) researchers induced affective conditions in attempts to study cognitive processing further (Fielder and Bless, 2001; Bless, 2001). Bless and colleagues found individuals placed in a negative mood state, (versus positive mood state), and asked to make judgments about another individual, were then less likely to rely on default, general knowledge, about that person and more likely to rely on specifics and the given information at hand.

The research described above suggests information processing is dependent upon affect and individuals in negative mood states utilize contextual information to a greater extent than individuals in positive or even neutral mood states. Applying the above research to the

connectionist model of ILT activation suggests leader's affect (as the perceiver) will influence the reliance on implicit theories when making judgments about leadership. Therefore, it is predicted that individuals in a positive affect condition will rely on their implicit theory more, when making judgments about leadership whereas individuals in a negative affect condition will rely less on their implicit theory.

Given all participants have the same stable prototypical structure to their implicit theories, the following hypothesis was made:

*Hypothesis 2.* Leaders primed with positive affect will activate a more prototypical leadership prototype whereas leaders primed with negative affect will activate a less prototypical leadership prototype.

## **2.9 – Interactive effects of follower behavior and leader affect on ILT activation**

Affect also guides attention, directs focus, and influences the processing of observed behaviors. It may potentially influence the processing of follower behavior with respect to perceptions of leadership by changing the information attended to when making evaluations of leadership traits and behaviors (Forgas, 1995). Leadership perception is a complex process involving the processing and evaluation of the accumulation of past and present information. Complex situations require heuristics; Damasio (1994) studied patients with damage to the emotion center of their brains and found that the patients had difficulty making evaluative decisions. Because of this, Damasio argued that moods are important for directing attention, especially when individuals must make sense of an abundance of information, (such as the complex information individuals attend to while forming leadership perceptions). Recall, Wofford and Goodwin (1994) proposed a cognitive processing model of leadership in which they suggest leaders can utilize transformational or transactional leadership schemas and leadership cognitions are

dependent upon contextual conditions. Goodwin et al. (2000) then demonstrated positive or negative feedback about subordinates leads leaders to access transformational or transactional leadership cognitions, respectively, and recall Bass's argument that transformational leadership most closely resembles prototypical leadership. Finally, negative affect may increase the likelihood that individuals pay attention to situational information when making judgments about leadership. Thus, participants in the negative affect condition should activate more prototypical ILTs when they have active followers and activate more anti-prototypical ILTs when they have passive followers. Individuals in the positive affect conditions employ top-down cognitive processing. Individuals may rely more on the prototype and what is considered prototypical leadership, regardless of the follower information. Therefore, the following hypothesis was made regarding the interactive effects of follower behavior and leader affect and the hypothesized interaction is depicted in Figure 2.

*Hypothesis 3.* Follower behavior and leader affect will interact, such that follower behavior will have stronger effects on ILT activation when individuals are primed with negative affect rather than positive affect. More specifically, active follower behavior will activate stronger prototypical leader prototypes than passive follower behavior, in the negative affect condition, but not the positive condition.

## **Chapter 3 – Method**

### **3.1 – Participants**

An initial sample of 375 undergraduate students was recruited from the departments of management and psychology at a Southeastern university in the spring semester of 2015. Students were recruited in exchange for course extra credit. All 375 individuals participated in a two part study. In part one all participants were administered an ILT survey to determine each

participants stable ILT and in part two participants completed the IAT. All individuals who completed the ILT survey, in part one, were invited back to participate in part two. 10 participants were removed due to IAT response latency and error infractions, discussed in greater detail, below. A K-means Cluster Analysis, on the remaining 365 participants, was used to determine which participants would be included in the focal study analyses. Only those individuals who provided ILT ratings representative of a prototypical ILT were included in analyses. 135 were identified as having a prototypical implicit leadership theory. 107 participants were in the experimental conditions and 28 were in the null condition.

The final sample included 33 males (24%) and 99 females (73%). Three individuals did not report their gender (2%). On average participants were 20.4 years old. There was a varied representation of students by year in school: 7% were in their first year of college, 47% were in their second year, 33% were in their third year, 11% were in their fourth year of college or above and 2% did not report their year in college.

The ethnic composition of the sample was diverse and representative of the ethnic composition of the university: 114 were White (84%), 9 were Asian/Pacific Islander (7%), 6 were Hispanic/Latino (4%), 3 were Black (2%), and 1 was Native American/Native Indian (<1%). Two individuals chose not to disclose their ethnicity (1%). A wide majority of participants were born in the United States ( $N = 123$ , 91%), while only 4 individuals reported being born in Asia (4%), 1 was born in Europe (1%), and 3 were born in South America (3%). The remaining participants chose not to report their country of origin or responded as other ( $N = 3$ , 2%).

### **3.2 - Design**

A 2 x 2 between-subjects study, was conducted to examine the effect of follower behavior information (passive or active), and leader (perceiver) affect (positive or negative) on implicit leadership perceptions measured within an IAT framework. Data was collected on a null group for supplementary analyses.

### **3.3 – Prescreen Procedure**

Effect sizes vary widely across IAT studies. Generally, Cohen suggested that  $d = 0.2$  be considered a 'small' effect size,  $d = 0.5$  represents a 'medium' effect size and  $d = 0.8$  a 'large' effect size. That being said, the only leadership study that has used an IAT found very small, though statistically significant, effects. An a-priori power analysis (Lenth, 2001), for a two-way ANOVA, demonstrated that 30 participants per experimental condition would provide the power necessary to detect moderate to large effects.

The study consisted of two parts. Part one was a prescreen session in which participants were asked to complete Offermann et al.'s (1994) 41-item ILT survey. All management students enrolled in a "Management Theory and Leadership Practice" course during the spring 2015 semester were invited to complete the ILT survey. Psychology students completed the ILT as part of a "Psychology Department-wide" prescreen survey. All ILT data was collected online, via Qualtrics, (Qualtrics, Provo, UT) at least two weeks prior to being invited to participate in part two of the study. The ILT survey took approximately 20 minutes to complete. Participants were asked to rate how characteristic each of the 41 traits is of a leader on a 9-point scale (1 = not at all characteristic to 9 = extremely characteristic). The survey contains eight dimensions representing ILTs. Four dimensions were scored and used to determine each participants' ILT: Sensitivity ( $\alpha = .87$ ) (8 items, e.g., compassionate, sensitive), Dedication ( $\alpha = .81$ ) (4 items, e.g.,

dedicated, motivated), Tyranny ( $\alpha = .89$ ) (10 items, e.g., dominant, selfish, manipulative), and Intelligence ( $\alpha = .82$ ) (6 items, e.g., intelligent, clever). See Appendix A for the full scale.

Part one was critical as it allowed me to determine which participants possessed a prototypical ILT. By performing analyses on only individuals with a prototypical ILT the effects of affect and follower behavior on the activation of ILTs could be investigated. In order to determine which participants possessed a prototypical ILT, I conducted a K-means Cluster Analysis. I specified a four-cluster solution based on prior findings on the leader prototype measure (Foti et al., 2012). See Table 1 for the leader prototype cluster centers and cluster N-sizes. The solution generated by the cluster analysis was comparable to leader prototype patterns found by previous researchers, though overall the cluster means were generally higher across the four scale scores of sensitivity, dedication, tyranny, and intelligence (Foti et al., 2012). There was a cluster that was reflective of prototypical leadership, with lower than average scores on tyranny, and higher than average scores on intelligence, dedication and sensitivity (cluster 4, N = 135).

### **3.4 – Procedure**

All participants who completed the prescreen ILT survey were invited to participate in part two. Management students were scheduled for one thirty minute experimental session via email and Psychology students could sign-up for one thirty minute experimental session via SONA. A free trial of Millisecond-Inquisit lab software [computer software] was downloaded to 13 separate desktop computers in a computer lab. The free trial provided access to the full software package for one month.

Participants were randomly assigned to one of five conditions: 1) follower passive/positive affect, 2) follower passive/negative affect, 3) follower active/positive affect, 4)

follower active/negative affect or 5) null. Manipulations and surveys were administered via Qualtrics (Qualtrics, Provo, UT). The first page of the study was a consent form that all participants read. To view the consent form, see Appendix B. The next page of the study directed participants to the affect manipulation. Participants in the positive affect conditions watched a five minute “funny” video (Saturday Night Live – “Celebrity Jeopardy”) (Yahoo Screen!, 2001). Participants in the negative affect conditions watched a five minute “sad” video, (Animal Cruelty video) (EndOfNumbers, 2013). After watching the video, each participant completed the Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988). The PANAS acted as an affect manipulation check.

Upon completion of the PANAS, participants were placed in the role of leader and read one of two brief scenarios about the behaviors of three subordinates, all of which were either passive follower behaviors or active follower behaviors. Following the scenarios participants were required to perform a brief memory test in which they chose which of two behaviors (example: conforms vs. participates) matched the behavior of “their” subordinates and they were provided with error feedback, via Qualtrics (Qualtrics, Provo, UT). The purpose of the memory test was to increase the follower behavior information manipulation’s salience. Participants in the null condition only completed the PANAS and were placed in the role of leader.

After completion of the memory test, participants were asked to raise their hand. Research assistants opened the IAT software from the desktop and all participants were directed to type in their PID as per the software pop-up. Participants were given brief oral instructions on what to expect during the IAT, how to proceed after the IAT, and then were told they could begin by clicking the start button with their mouse. The software then presented further instructions and directed participants through the IAT. Response latencies (in ms) were recorded

and IAT-*D* scores computed. Once the IAT was complete, the software provided them with summary score information, their IAT-*D* score and their preference for Visionary or Authoritarian Leadership, and automatically closed when the participant clicked finish. As per the research assistant's instructions, participants reentered their Qualtrics survey, which was still open on the desktop, and they completed a brief demographic questionnaire and were debriefed.

### **3.5 – Independent Variables and Respective Manipulation Checks**

**Affect Videos.** Leader affect was manipulated using one of two videos. Individuals assigned to the positive affect condition watched a five minute clip from a “Celebrity Jeopardy” skit from an episode of Saturday Night Live. Individuals assigned to the negative affect condition watched a five minute video about animal cruelty. See Appendix C for the affect manipulation page of the study, with links to each video. Video manipulation was suggested in a personal communication at SIOP (Thomas Sy, personal communication, May 17, 2014).

**Positive and Negative Affect Schedule (PANAS).** The PANAS was used as an affect manipulation check. Participants completed the PANAS (Watson, Clark, & Tellegen, 1988) by rating the extent to which they experienced positive affect ( $\alpha = .81$ ) (interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active) and negative affect ( $\alpha = .97$ ) (distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid) on a five-point scale (1 = very slightly or not at all to 5 = very much).

**Follower Behavior Information Scenarios.** Individuals were placed in the leader role and asked to read a scenario about their three followers containing nine passive behaviors (conform, steady, available, easily directed, comply, rarely raise questions, not active, rarely complain and easily managed) or nine active behaviors (work hard, new ideas, engaged, eagerly share, off-task, challenge, independent, accomplish tasks, creative outlet). See Appendix D for

full scripted scenarios. Part of the follower behavior manipulation included a memory task. This task was meant to bolster the follower behavior manipulation. Two behaviors, one from the passive follower scenario and one from the active follower scenario, were paired at random and participants were asked to recall what behavior “their” employees exhibited in the previous scenario. Some of the behaviors were very similar so only seven behaviors from each scenario were included in the memory task. See Appendix E for the entire memory test.

### **3.6 – Pilot studies for Independent Variables**

**Pilot Study One Participants.** The pilot sample consisted of 52 undergraduate students enrolled in a psychology course during the fall semester of 2014 at a Southeastern University. All participants signed-up for the study via SONA. 15 participants were male, 25 participants were female, and 12 participants chose not to identify their gender.

**Pilot Study One Procedure.** The first pilot study was completed online, via Qualtrics, and conducted to test the strength of the affect manipulations, to ensure attention would be paid to the follower behavior scenarios and to ensure the follower behaviors chosen were representative of a follower. Participants were first asked that they be in a quiet location with access to headphones. They were asked to read a consent form. They were all given the option to consent immediately or return at a later time, when in an appropriate quiet location. Participants then watched either the positive affect video or negative affect video. After watching the video they completed the PANAS, see Appendix F. Individuals then read either the passive or active follower behavior scenarios and completed the memory test. Follower behavior is widely discussed but not often quantitatively studied. Therefore, as a final step in pilot study one participants were asked, “On a scale of 1 (not at all characteristic) to 7 (extremely characteristic) to what degree do you believe followers possess the following list of behaviors?”

This was done to ensure the follower scenarios, composed of behaviors, were representative of passive and active follower traits as well as to ensure the traits didn't simply break down as negative and positive for passive and active behaviors, respectively.

**Pilot Study One Results.** Two independent-sample t-tests were conducted to compare PANAS scores across the negative and positive conditions. There was a significant difference on scores of the positive subscale of the PANAS between participants in the positive affect condition ( $N = 28, M = 30.04, SD = 5.69$ ) and participants in the negative affect condition ( $N = 24, M = 26.42, SD = 7.24$ );  $t(50) = -2.02, p < .05, d = 0.57$ . There was also a significant difference on scores of the negative subscale of the PANAS between participants in the positive affect condition ( $N = 28, M = 12.04, SD = 2.86$ ) and participants in the negative affect condition ( $N = 24, M = 31.33, SD = 11.28$ );  $t(50) = 8.75, p < .001, d = 2.47$ . Therefore, scores on the PANAS indicated the video manipulation was successful such that individuals reported more positive and less negative feelings of affect after watching the positive video and individuals reported more negative and less positive feelings of affect after watching the negative video. See Table 2 for mean PANAS scores across videos.

Correct response rates on the memory test indicated individuals could recall follower behaviors from the scenarios with high accuracy. In addition, the average number of incorrect responses on the memory test was below one, suggesting the task acted as a bolster to the follower behavior information manipulation. See Table 3 for the correct response rates on the memory task.

One participant was removed from the analysis of the follower behavior survey due to responding one to all questions ( $N = 51$ ). Likert-type scales represent a continuum and as such, a mean rating of two would suggest a behavior was “not characteristic” of followers. A mean

rating of three would represent a behavior “somewhat not characteristic” of followers. Certain traits were rated as less characteristic of followers but all mean ratings were above three. The behaviors rated least characteristic were sometimes off-task ( $M = 3.35$ ,  $SD = 1.12$ ), challenges authority ( $M = 3.42$ ,  $SD = 1.43$ ) and rarely complains ( $M = 3.48$ ,  $SD = 1.26$ ). Sometimes off-task and challenges authority were from the active follower behavior scenario and rarely complains was from the passive follower behavior scenario. The remaining characteristics were above 3.5. This generally suggests participants felt most behaviors in the scenarios were representative of followers, while a few behaviors were only slightly representative. Given the questions were asked via a Likert-type scale, it should be expected to find some lower means and higher means. The mean across all the behaviors was 4.65, the mean across the active behaviors was 4.21, and the mean across the passive behaviors was 5.08. This suggests the behaviors within the scenarios were generally seen as characteristic of both passive and active followers. See Table 4 for mean scores and standard deviations across passive and active follower traits.

**Pilot Study Two Participants.** The pilot sample consisted of 34 undergraduate students enrolled in a psychology course during the fall semester of 2014 at a Southeastern University. All participants signed-up for the study via SONA. 11 participants were male, 17 participants were female, and 5 participants chose not to identify their gender.

**Pilot Study Two Procedure.** A second pilot study was completed online, via Qualtrics, and conducted to ensure the follower behavior information manipulation would not impact participant affect. In the second pilot study, individuals read the passive or active follower scenario, completed the memory test and completed the PANAS.

**Pilot Study Two Results.** Two independent-sample t-tests were conducted to compare PANAS scores across the active and passive follower behavior conditions. There was no

significant difference on scores of the positive subscale of the PANAS between participants in the active follower behavior condition ( $N = 16, M = 32.81, SD = 6.72$ ) and participants in the passive follower behavior condition ( $N = 18, M = 28.06, SD = 9.61$ );  $t(32) = -1.65, p = ns, d = 0.58$ . There was also no significant difference on scores of the negative subscale of the PANAS between participants in the active follower behavior condition ( $N = 16, M = 16.06, SD = 7.87$ ) and participants in the passive follower behavior condition ( $N = 18, M = 17.00, SD = 7.54$ );  $t(32) = 0.35, p = ns, d = 0.12$ . Therefore, scores on the PANAS indicated the follower scenarios did not impact affect. See Table 5 for PANAS means across the follower scenarios.

**Pilot Study Three Participants.** The pilot sample consisted of 54 undergraduate students enrolled in a psychology course during the fall semester of 2014 at a Southeastern University. All participants signed-up for the study via SONA. 15 participants were male, 27 participants were female, and 13 participants chose not to identify their gender.

**Pilot Study Three Procedure.** A third pilot study was completed online, via Qualtrics, and conducted to ensure the affect video manipulation was strong enough to influence affect for the duration of the study (e.g., through the follower behavior information manipulation). In the third pilot study, individuals watched either the positive affect or negative affect video. They then read active or passive follower behavior information, completed the memory test and completed the PANAS.

**Pilot Study Three Results.** One two (follower behavior) by two (affect) between subjects ANOVA was conducted to test the effects of the follower behavior manipulation and affect manipulation on the positive PANAS scale. There was not a significant main effect of follower behavior condition,  $F(1, 53) = 0.33, p = ns, \eta^2 = .006$  or affect,  $F(1, 53) = 0.44, p = ns, \eta^2 = .009$ , or the interaction between the two,  $F(1,53) = 0.57, p = ns, \eta^2 = .01$ . A second two

(follower behavior) by two (affect) between subjects ANOVA was conducted to test the effects of the follower behavior manipulation and affect manipulation on the negative PANAS scale. There was not a significant main effect of follower behavior condition,  $F(1, 53) = 0.20, p = ns, \eta^2 = .003$ , but there was a significant main effect of the affect videos,  $F(1, 53) = 7.65, p < .01, \eta^2 = .13$ , such that negative subscale scores were higher following the negative affect video and lower following the positive affect video. The interaction between the follower behavior scenarios and the affect videos was not significant,  $F(1,53) = 0.003, p = ns, \eta^2 = .00$ .

These ANOVAS were done to ensure the affect video manipulation was effective, through the follower behavior tasks, as measured by the PANAS. Scores on the PANAS were in the same direction as those reflected in the first pilot study, and there remained a significant difference on the negative subscale across affect manipulations, indicating the affect manipulation was certainly effective at manipulating scores on the negative subscale of the PANAS even after the follower behavior manipulation. See Table 6 for PANAS scores taken after participants watched both an affect video and read the follower behavior scenario.

**Summary of Pilot Studies.** Pilot study one demonstrated that the affect video manipulations worked in impacting recorded affect, via the PANAS. Although there were significant differences on the positive subscale on the PANAS, they were small, and the differences between positive and negative video affect conditions, on the negative subscale of the PANAS were far greater. In addition, pilot study one demonstrated participants could show high levels of recall on the memory task, following the follower behavior manipulation and finally, pilot study one demonstrated that participants viewed the follower behaviors, within the scenarios, as generally representative of followers. There was a difference between the mean score for active follower behaviors and the mean score for passive follower behaviors. This was

not totally unexpected. Researchers have demonstrated that people, in general, identify followers as being passive rather than active (Hopton, Christie, and Barling, 2012). Pilot study two demonstrated that the follower behavior scenarios did not significantly impact the PANAS scores. Pilot study three demonstrated that the effects, as measured by the PANAS, of the affect videos were strong enough, such that there were significant effects of the videos given the follower behavior manipulation occurred between the affect videos and PANAS measurement. However, you will notice there were no significant effects of the affect videos, on the positive subscale of the PANAS. Generally, across all three pilot studies, the effects associated with the positive subscale of the PANAS, on all t-tests and ANOVAs were small, while the effects associated with the negative subscale of the PANAS, were larger. I believe this is reflective of the scale and the participant experience. Generally speaking, people maintain positive affect and the average score on the PANAS scales are typically in the 30s for the positive subscale and low 20's on the negative subscale. It is clear that the positive video produced low negative subscale scores and the negative video produced high negative subscale scores. So, while it is clear the video manipulations had strong effects on responses to the negative subscale of the PANAS, results suggest responses to the positive subscale of the PANAS were largely unaltered. I decided to move forward with the videos given the significant differences on the negative subscale of the PANAS.

### **3.7 – Dependent Variable**

**Leadership IAT.** The IAT measures the relative strength of association between pairs of concepts, consisting of attributes and categories. The attributes “positive” and “negative” were represented by stimuli of positive and negative valence, (All positive and negative stimuli came from the International Affective Picture System (IAPS) and can be viewed in Appendix G) and

the categories “prototypical” and “anti-prototypical”, represented by stimuli representative of these two types of leadership (for the list of leader traits see Appendix H). However, prototypical and anti-prototypical leadership are not common leadership terms outside academia and students do not likely have a current understanding of the terms. Since prototypical leadership is composed of high sensitivity, IQ, and dedication and low tyranny, “visionary” was chosen as the appropriate label to represent prototypical. Anti-prototypical leadership is composed of low sensitivity, IQ and dedication and high tyranny, therefore “authoritarian” was chosen as the appropriate label to represent anti-prototypical.

Participants sorted stimuli into one of two headings. There were practice blocks in which headings were represented **either** by the attributes, positive and negative, **or** the categories, visionary or authoritarian leadership. There were test blocks where headings were created by pairing the categories with the attributes. Traits representing visionary or authoritarian leadership and positive and negative images were flashed in the center of a computer screen and participants sorted the pictures and traits as to whether they belong with heading in the upper left or upper right corners of the screen. During test blocks of the IAT, there were 40 trials during which 20 pictures and 20 traits were flashed onscreen for each of the two possible pairings with responses usually taking less than a second and the order counterbalanced across participants.

The IAT is based on the logic that when the category and attribute are strongly associated, participants will be quicker in sorting stimuli. For instance, if a participant sees the trait, considerate, they will be faster at sorting considerate if the headings read “Visionary Leader + Positive” and “Authoritarian Leader + Negative” rather than if the headings read “Visionary Leader + Negative” and “Authoritarian Leader + Positive”. The correct response would be to sort considerate into the heading with the attribute, positive. This association between Visionary

Leader and Positive indicates an implicit preference towards Visionary Leader. The IAT process is briefly discussed below and the IAT can be viewed in Appendix I.

**IAT Structure.** The IAT was designed following the guidelines by Greenwald and colleagues (Greenwald et al., 1998). Participants completed the IAT in seven blocks. Blocks one, two, and five were practice blocks, in which stimuli, either attribute pictures (positive and negative pictures) or category traits (Visionary and Authoritarian Leadership traits) were presented and classified the stimuli by pressing the E or I key, which corresponded with either positive or negative headings, or Visionary or Authoritarian Leadership headings (in different blocks).

Blocks three and six were also practice blocks but participants were presented with stimuli, both attribute pictures **and** category traits, within the same block. These practice blocks preceded the test blocks, which were of the same format. Block four and block seven were the test blocks. In blocks three, four, six and seven, participants classified the attribute pictures and category traits by pressing E (stimuli corresponded with the left heading) or I (stimuli corresponded with the right heading). See Table 7 for the full sequencing of the IAT.

### **3.8 – Pilot study of IAT leadership traits**

**Participants.** The pilot sample consisted of 51 undergraduate students enrolled in a psychology course during the fall semester of 2014 at a Southeastern University. All participants signed-up for the study via SONA. 15 participants were male, 34 participants were female, and 2 participants chose not to identify their gender.

**Procedure.** This pilot study was conducted online, via Qualtrics. All traits from Offermann and colleague's (1994) ILT survey were piloted as well as a handful of traits added for the purpose of capturing low levels on the scales: tyranny, intelligence, dedication and

sensitivity. Individuals sorted the leader traits into the categories visionary leadership or authoritarian leadership. Participants were specifically told, “The following list of traits are descriptive of leadership. Please sort the traits into either a Visionary leadership category or Authoritarian leadership category.” This data was used to determine what traits would be used in the IAT. Traits were selected based on consistency of sorting (e.g., majority of participants sorted warm into Visionary Leadership rather than Authoritarian Leadership). The final list of traits were selected from those traits with the highest levels of sorting consistency and affect neutrality, such that traits not overtly positive or negative were chosen by myself and my dissertation advisor.

**Results.** Table 8 displays the means associated with the sorting task. Means closest to one represent a trait that was sorted most frequently as visionary and means closest to two represent a trait that was sorted most frequently as authoritarian. The mean of the visionary leadership traits was 1.89 and the mean of the authoritarian traits was 1.08. These means are representative of percentages such that 95% of the time, participants sorted the traits selected for the leadership IAT, into the expected category (e.g., considerate as Visionary Leadership and demanding as Authoritarian Leadership). Once sorting means were calculated, traits most consistently sorted into their respective leadership style were qualitatively examined for affect neutrality. Those traits highlighted in table 8 were selected for use in the IAT.

### **3.9 –Demographic Variables**

**Demographic Questions.** All participants were asked a series of demographic questions. Participants reported ethnicity, gender, age, and semesters completed at the post-secondary education level.

## Chapter 4 – Analyses

### 4.1 – Treatment of the IAT data

In accordance with Greenwald et al.'s (2003) improved scoring methods for the IAT, trials with more than a 10,000 ms reaction time were eliminated. Though 10,000 ms is a somewhat large and arbitrary cut-off, it eliminates from the analyses trials where attention was clearly not on the task (Nosek, Greenwald, and Banaji, 2003). Six participants had trials with response latencies greater than 10,000 ms and these trials were eliminated.

Participants who took less than 300 ms on more than 10% of their trials were eliminated from analyses all together. By doing so, participants who clearly provided random responses were eliminated. Nine individuals were removed due to having greater than 10% of their responses at less than 300 ms.

Participants who produced greater than 40% errors in any of the critical blocks were dropped from IAT data. Error rates above 40% on dichotomous rapid response tasks (e.g., the IAT and lexical decision task) suggest a lack of engagement or a failure to understand the instructions (chance responding alone would produce an error rate of 50%). Errors are defined as trials in which participants make an incorrect pairing (i.e. assigning the image of a smiley face to the joint category “negative + visionary”). Three individual produced greater than 40% errors and were therefore dropped from further analyses. Two of these individuals overlapped with individuals removed for high error rates or more than 10% of trials with response latencies of 300 ms or less. (1.5%), (Houben, Nosek, & Wiers, 2010).

The new scoring algorithm gives final IAT scores that are less contaminated by extraneous factors (Greenwald et al., 2003). After the removal of participants due to response latencies and error rates, none of the remaining participants had a response rate below 70%. A

total of ten participants were removed for missing or latency/error infractions. The final sample size was 135 participants, including the null block of participants and 107 within the experimental blocks only.

#### **4.2 – Computing the recommended IAT-*D* statistic**

After trials with latencies greater than 10,000 ms were eliminated from the raw data, and participants with more than 10% of trials with latencies below 300 ms were removed, block mean latencies of correct trials only were computed. Error latencies were then replaced with the block mean + 600 ms and aggregated with those block means. IAT-*D* scores were then calculated by subtracting the average latency (in ms) for prototypical blocks (visionary + positive and authoritarian + negative) from the antiprototypical blocks (visionary + negative and authoritarian + positive). This difference score was converted to the IAT-*D*, by dividing each participant's difference score by the pooled standard deviation of his or her response in the critical blocks (Greenwald, Nosek, & Banaji, 2003). IAT-*D* scores range between -2 and 2. IAT-*D* scores further away from zero and positive indicate an implicit preference for Visionary Leadership. IAT-*D* scores close to zero indicate no implicit preferences towards visionary or authoritarian leadership and IAT-*D* scores further away from zero and negative indicate an implicit preference towards Authoritarian Leadership.

#### **4.3 – Reliability of the IAT**

Recorded internal consistencies (reliability), of the IAT, are usually between alphas .60 and .90 (Gawronski, Deutsch, & Banse, 2011; Uhlmann et al, 2012). Researchers have also used test-retest to assess the reliability of the IAT and found a test-retest reliability score of .56 (Nosek, Greenwald, & Banaji, 2007). It is obvious then that there is a discrepancy between the

accepted reliability of explicit measures (cut-off typically above  $\alpha = .80$ ) and IATs. Therefore, IAT reliability was calculated.

Schnabel, Asendorpf and Greenwald (2008) discussed the calculation of reliability of the IAT and suggested there are various ways for the calculating internal consistency of the IAT, specifically IAT-*D* measures. There are three procedures for calculating reliability. First, researchers can compute difference scores for every single trial of the combined blocks and treat them as separate items to calculate Cronbach's alpha. Second, researcher can calculate difference scores for blocks of 5, 10, 20 or more trials. Third, researchers can calculate split-half reliabilities over blocks with identical number of trials, and some over blocks with different numbers of trials.

The most common method is the third option, which is to calculate IAT-*D* for practice trials and test trials as a version of split-half reliability. The IAT-*D* scores represent the differential strength of associations between visionary and authoritarian leadership and positive and negative. Internal consistency of the IAT-*D* was calculated by correlating the IAT-*D* effect for the practice trials (first 20 trials in each test block), with the IAT-*D* effect for test trials (40 trials following practice trials) (Nosek, Greenwald, & Banaji, 2005). The internal consistency was relatively high and within the expected range of recorded internal consistencies ( $\alpha = 0.72$ ).

## **Chapter 5 – Results**

### **5.1 – Manipulation Checks and Descriptive Statistics**

**Surveyed Prototypical ILT Check.** There were 28 people in null condition. All individuals in the null condition completed part one of the study and as indicated earlier, clustered into a prototypical leadership style cluster. Participants in the null condition came into the lab and completed the IAT only. They had a mean IAT-*D* score of 1.07, which is reflective

of a preference towards visionary leadership. Therefore, both the ILT survey and the IAT indicated individuals had a preference for prototypical leadership and this result suggests that the IAT was successful at capturing leadership perceptions.

**Affect Manipulation Check.** One independent-samples t-test was conducted to compare the positive PANAS scale scores between the positive and negative affect conditions, and one independent-samples t-test was conducted to compare the negative PANAS scale scores between the positive and negative affect conditions, and to ensure the affect video manipulations did have an effect on affect. There was a significant difference in positive PANAS scores between the positive ( $N = 44, M = 31.16, SD = 6.95$ ) and negative ( $N = 63, M = 25.29, SD = 6.22$ ) affect conditions;  $t(105) = 4.58, p < .001, d = 0.89$ . There was also a significant difference in negative PANAS scores between the positive ( $N = 44, M = 11.80, SD = 2.04$ ) and negative ( $N = 63, M = 28.59, SD = 13.86$ ) affect conditions;  $t(65.82) = 9.47, p < .001, d = 2.33$  (equal variances not assumed given a significant Levene's test for equality of variances  $F(1, 106) = 157.73, p < .001$ ). For means see Table 9.

**Memory Task.** Participants recorded their response and the correct response to each question was indicated after each pair. Participants, overall, responded correctly 90.14% (Active - 89.86%, Passive - 90.43%) of the time. An independent-sample t-test was conducted to compare the average number of correct responses across the follower behavior conditions. There was not a significant difference between the average number of correct responses to the memory task between the passive ( $N = 52, M=6.33, SD=1.10$ ) and active follower behavior conditions ( $N = 55, M=6.29, SD=0.79$ );  $t(105) = -0.20, p = ns, d = -0.04$ . This suggests participants could recall the behaviors of their followers with high levels of accuracy and there was consistency

such that participants in the passive follower condition were correct across the pairs of items at similar rates to participants in the active follower condition.

**Descriptive Statistics and Correlations.** One independent-sample t-test was conducted to compare IAT-*D* scores across management and psychology students. There was not a significant difference in the IAT-*D* scores for management students ( $N = 67, M=1.12, SD=.25$ ) and psychology students ( $N = 40, M=1.04, SD=.25$ );  $t(105) = 1.62, p = ns, d = 0.32$ . Means and standard deviations across all conditions are displayed in Table 10. Bivariate correlations are displayed in Table 11. IAT-*D* scores were significantly correlated with gender,  $r(132) = -0.20, p < .05$ . Women's IAT-*D* scores (IAT-*D* = 1.16) were significantly higher than men's IAT-*D* scores (IAT-*D* = 1.05). This correlation was explored further and was calculated with the experimental blocks only,  $r(105) = -0.15, p = ns$ . IAT-*D* scores were also significantly correlated with scores on the positive scale of the PANAS,  $r(135) = 0.19, p < .05$ . This is reflective of IAT-*D* scores, being generally positive (overall IAT-*D* = 1.09). Age and semester were significantly correlated,  $r(132) = 0.58, p < .01$ , age and gender were significantly correlated  $r(131) = -0.26, p < .05$ , such that male participants were significantly younger than female participants and age and ethnicity were significantly correlated  $r(132) = 0.24, p < .05$ . Finally, as expected, the positive scale and negative scale of the PANAS were correlated,  $r(135) = -0.48, p < .01$ .

## 5.2 – Focal Study Results

Figure 3 reflects the range of IAT-*D* scores across students in all conditions. A two (follower behavior) by two (affect) between subjects ANOVA was conducted to test whether implicit beliefs about leadership are activated in response to exposure to follower behavior information and an affective experience. There were significant main effects of follower

behavior condition,  $F(1, 106) = 4.26, p < .05$ , and affect,  $F(1, 106) = 10.77, p < .001$ , represented by Figures 4 and 5, respectively. Leaders who read about followers exhibiting active behaviors demonstrated a stronger implicit association of Visionary Leadership with positive and stronger implicit association of Authoritarian Leadership with negative ( $IAT-D = 1.13$ ). Leaders who read about followers exhibiting passive behaviors demonstrated a weaker implicit association of Visionary Leadership with positive and weaker implicit association of Authoritarian Leadership with negative ( $IAT-D = 1.04$ ). Participants in the positive affect condition exhibited a stronger association of Visionary Leadership with positive and stronger implicit association of Authoritarian Leadership with negative ( $IAT-D = 1.18$ ) as compared to participants in the negative affect condition who exhibited a weaker implicit association of Visionary Leadership with positive and weaker implicit association of Authoritarian Leadership with negative ( $IAT-D = 1.02$ ). Results indicated there was no significant effect of the interaction of follower behavior and affect, reflected in Figure 6. ANOVA results are displayed in Table 12.

### **5.3 – Supplementary Analyses**

Four independent sample t-tests were conducted, which compared the experimental conditions to the null condition. This was done because I was interested in exploring the differences between the null condition and experimental conditions. Every individual in the null condition completed the prescreen ILT and just like all other participants in the study, clustered into a prototypical leadership cluster. The null condition was the only condition that was not manipulated and the condition that represented the stable prototypical ILT and participants in this condition displayed a preference towards visionary leadership ( $IAT-D = 1.07$ ). Hypothesis one and two were supported such that individuals within the active follower conditions displayed stronger implicit preference towards visionary leadership than those within the passive follower

conditions. Individuals within the positive affect conditions displayed stronger implicit preference for visionary leadership than those within the negative affect conditions. Support for these hypotheses led me to explore if the manipulations increased participant preference for visionary leadership, or decreased participant preference for visionary leadership, beyond that preference displayed by null group participants. There was not a significant difference between the positive affect/passive follower behavior condition and the null condition and there were not significant differences between either of the negative affect conditions and the null condition. Given the data, individuals in the positive affect/active follower condition had the greatest implicit preferences for visionary leadership and there was a significant difference between the positive affect/active follower behavior condition ( $N = 24, M = 1.25, SD = 0.24$ ), and the null condition ( $N = 28, M = 1.08, SD = 0.20$ ),  $t(50) = 2.89, p < .01, d = 0.82$ . This result suggests individuals in the positive affect/active follower behavior condition had significantly stronger implicit preferences for visionary leadership than individuals in the null condition.

## **Chapter 6 – Discussion**

### **6.1 – Summary of results**

The purpose of this research was to investigate the contextualization of ILT activation (Uhlmann et al. 2012). Follower behavior and leader affect were manipulated with the aim of discerning their impact on a leaders' ILT, as measured by an IAT. Specifically, this research was aimed at empirically demonstrating that follower behavior contextualizes a leaders' ILT activation and that affect influences the degree to which leaders attend to that follower behavior information. Additionally, ILT activation was measured not by survey but by an IAT, with the intention of answering the call for more process-oriented and implicit measures of ILTs.

All participants completed Offermann and colleague's (1994) ILT survey prior to the in-lab experiment and all participants included in the focal study possessed a prototypical leadership implicit theory. This was a vital procedural step during the study because it allowed me to assume that all participants maintained similar stable networks of leadership traits, which were prototypical. Essentially, this means that their stable prototype of a leader is relatively visionary and positive. Results on the IAT demonstrate that regardless of the manipulations, on average, participants associated positive attributes with visionary leadership and negative attributes with authoritarian leadership more quickly ( $IAT-D = 1.09$ ), reflecting a preference for visionary leadership, which was also reflected in the average  $IAT-D$  score of the null group (1.07).

However, there were significant effects of the manipulations such that leaders who read about active followers had a significantly stronger preference towards visionary leadership ( $IAT-D = 1.13$ ) than those that read about passive followers ( $IAT-D = 1.04$ ). There were significant effects of the affect manipulation as well such that leaders manipulated to experience positive affect had significantly stronger preferences towards visionary leadership ( $IAT-D = 1.18$ ) than those in a negative mood ( $IAT-D = 1.02$ ). Though not significant leaders within the negative affect and passive follower behavior condition demonstrated the weakest preference towards visionary leadership ( $IAT-D = 1.01$ ) and leaders within the positive affect and active follower behavior condition demonstrated the strongest preference towards visionary leadership ( $IAT-D = 1.25$ ). These results may suggest that positive and negative affect, influenced ILT activation, but not likely via an affect infusion mechanism, which would have been demonstrated by large differences between follower behavior conditions within the negative affect condition. The results do demonstrate an affect-as-information mechanism and more likely, the results

demonstrate mood-congruent effects of affect on ILT activation. Consistent with my expectations, follower behavior and affect contextualized leadership perception. The following sections detail possible explanations for the results and insight into how the results fit into the broader literature on the leadership process.

## **6.2 – The effects of follower behavior on ILT activation**

Leadership is a process influenced by the social interactions between leaders and followers (DeRue and Ashford, 2010). Followers influence leadership in a process called the reciprocity of influence (Oc and Bashshur, 2013). Leadership perceptions are dynamic and can shift when expectations are or are not met by followers (Lord and Maher, 1991; Lord et al., 1984; Van Gils et al., 2010). There are numerous examples of researchers stating that follower behavior should influence leadership perceptions because it is such an integral piece of the leadership process, but there is little empirical work demonstrating these effects, (Carsten, Uhl-Bien, West, Patera, & McGregor, 2010; Engle & Lord, 1997; Epitropaki & Martin, 2005; Sy, 2010; Schyns & Schilling, 2010; Shondrick et al., 2010). Bass (1985) noted that transformational and transactional leaders hold differential expectations for their followers dependent on the type of leadership they prescribe to. There are certain behaviors, exhibited by followers, which may induce leaders to think about leadership differently, such that passive followers do their job but need a leader that provides guidance via rules and/or rewards/punishments and active followers are creative and involved in the organization and as such need a leader that allows them opportunities to influence the organization (Bass, 1985; Conger & Kanungo, 1987; House, 1977; House & Mitchell, 1974). Goodwin, Wofford and Boyd (2000) found that providing performance feedback about followers influences leader

cognitions. The expectation is that leaders can alter their perceptions of leadership to align with the behavior of their followers (Wofford & Goodwin, 1994).

Following these assertions and research findings, this study explored if and how follower behavior can alter ILT activation and this study demonstrated that ILT activation is contextualized by follower behaviors. Leaders had a stronger association between positive and Visionary Leadership, in an experimental situation, when primed with active followers and had less association of positive with Visionary Leadership when primed with passive followers. This finding is consistent with the previous research suggesting leadership is a process that takes place between leaders and followers and leader perceptions are in part determined by their follower. In fact, previous research conducted by Carsten and her colleagues (2010) suggests implicit theories, can be influenced by contextual variables, and though their study focused on social constructions of followership they drew direct connections between active followership and what they called empowering leadership and passive followership and authoritarian leadership. In an interview format, followers suggested they alter their style of followership to match that of the leader, whether empowering (visionary) or authoritarian.

### **6.3 – The effects of leader affect on ILT activation**

Affect infusion is defined as a process whereby affective experiences influence cognitive and information processing functions. Affect influences attention and deliberation in judgment and decision making processes. Research over the last thirty years has supported that affect influences information processing, such that negative and positive affect led to different styles of information processing (Isbell, Lair, & Rovenpor, 2013). Negative affective experiences increase elaboration and decrease reliance on category membership information in person perception experiments (Bless, Schwarz and Kimmelmeier, 1996; Schwarz & Clore, 2007;

Gasper & Clore, 2002). Being in a negative mood fosters systematic data-driven processing strategy. In contrast positive affective experiences do not signal any additional processing requirements. Individuals in a happy mood more likely rely on general knowledge structures, or a heuristic processing style. Schwartz described the decision process and illustrated the hierarchical relationship between factors that determine processing strategies and informational and processing effects of affect on judgments. When individuals are in a positive mood should use a heuristic based, simplified low effort information processing strategy. Those in a negative mood should use a more elaborate substantive information processing strategy.

The interaction of follower behavior and leader affect on leader's perceptions of leadership was not supported. The AIM was used as rationale for how and why affect would influence the attention of a leader to follower behavior information and influence perceptions of leadership. The hypothesis that more substantive processing of follower behavior information would occur in the negative affective condition was not supported. There was little variance in IAT-*D* scores and preference for either visionary or authoritarian leadership within the negative affect condition. In the case of the current study, it seems that rather than engaging in detailed integration of relevant information individuals judged targets based on how they felt. This resulted in a misattribution of the affective state, such that the pre-existing affective state was unconsciously attributed as an affective reaction to the target or task. More positive judgments occurred when individuals were experiencing positive affect than when experiencing negative affect.

Research supports mood congruent retrieval processing such that affective state facilitates the recall of affectively congruent material from memory. Researchers found that depressed or anxious people selectively recall negative unpleasant memories whereas non-depressed

individuals show the opposite (Burke and Mathews, 1992; Lloyd and Lishman, 1975). Implicit memory tasks such as a lexical decision task have shown to have strong mood-congruent memory effects (Niedenthal, and showers, 1991; Ruiz-Baballero, and Gonzalez, 1994) and the results of this study are consistent with those assertions.

Though the interaction was not significant, there were interesting effects of affect and follower behavior in the data. Most of the variance in IAT-*D* scores occurred across the affect conditions and within the positive affect condition. In fact, the greatest preference for visionary leadership, or largest IAT-*D* scores, occurred in the positive affect and active follower behavior condition while IAT-*D* scores from the positive affect and passive follower behavior condition were quite similar to both negative affect conditions. The effects of positive affect could be explored further. Though positive affect typically influences people towards heuristic processing the results suggest individuals within the positive affect conditions were still processing follower behavior information, and processing the information to a greater degree than those in the negative affect conditions. The results of the current study align with an argument made by Isbell and colleagues (2013) that the assumption that there is a direct link between affect and information processing is tenuous and context can and may influence how affect influences perception and decision-making such that affect only potentially directs cognitive processing. Positive affect doesn't mean individuals will not use more analytical processing styles, just that there is not a need to do so.

#### **6.4 – Limitations**

As with many laboratory based experiments, generalizability of the findings is a concern. Most notably, the sample composition was limited to undergraduate students from a large Southeastern University. Leadership perceptions develop over time and it may be that

undergraduate students have dissimilar concepts of leadership as compared to working adults. Visionary and Authoritarian leadership are abstract terms and may have been especially more confusing to undergraduate students that have not been exposed to hierarchical leadership situations or leadership theory. I do believe that this limitation is somewhat mitigated by the method of assessment. The characteristics chosen for this study were specifically selected using prior research (Foti et al., 2008) regarding the characteristics of students' leader prototype. These characteristics also can be found in full time work adults (Epitropaki & Martin, 2004), thus this concern is minimal. Related to the sample is a limitation of sample size. Given this was a lab study the sample size was relatively small. There were significant main effects that are typical of effect sizes within connectionist literature. However, if a larger sample with a more even distribution of participants were collected it is unclear as to whether the effects would have been larger and the interaction between affect and follower behavior would have been significant. Limited statistical power because of the model sample size in the study, may have played a role in limiting the significance of the interaction, specifically. A post hoc power analysis revealed substantial observed power for the main effects but the interaction was only powered at the 0.32 level.

A second limitation is the use of a brief scenario and memory task as the follower behavior prime. Single scenarios are brief and unlike the real-life scenarios experienced in workplace contexts. The mean differences across groups was small, however this doesn't negate support for a connectionist model of leadership. Within the connectionist model of leadership there is a stable network of traits. The manipulations led to small shifts in the activation of ILTs, however, I believe in a true work environment on real-life scenario; experienced in the workplace the effects could actually be larger.

The final limitation is less of a concern and more simply a reflection of questions that have been posed towards IAT researchers. Given most ILT research is done with surveys that specifically ask individuals to rate traits on how representative they are of leadership it is reasonable to ask the question “do IATs of ILTs measure the same construct as the ILT survey?”. This question certainly warrants further investigation.

## **6.5 – Future Research**

Given the results, using the IAT to study leadership perception and ILTs should be investigated further. The traditional IAT, as was used in the current study, is a relative measure allowing for comparisons across categories. Naming the categories visionary and authoritarian leadership, was just one way to conceptualize leadership. The IAT could be used to explore leadership and gender as well as leadership and race. In addition, the IAT could be used to explore attitudes and associations towards leadership and followership by using leader and follower as category labels.

Another area that should be explored further is how well the IAT reflects personal attitudes versus societal attitudes. There is some past race research suggesting that the IAT captures societal attitudes towards African-Americans, for example, rather than an individual’s attitudes towards African-Americans. The current study’s results demonstrated individuals, overall, have stronger implicit preferences towards visionary leadership than authoritarian leadership and it may be the IAT was capturing societal norms rather than personal beliefs or perceptions towards leadership.

Finally, future research should investigate the impact of affect further. Not only should affect be used to explore AIM and affect-as-information as it relates to ILTs and the contextualization of ILTs but also different forms of affect should be investigated further.

Positive and negative are higher order terms that reflect a wide variety of affect: happiness, joy, amused, bored, calm, sad, angry, and anxious, just to name a few. Follower behavior should be studied further and in a more realistic condition such that the contextualization of ILTs is explored in the workplace and leaders' ILTs are measured after exposure to their actual subordinates rather than the lab condition.

## **6.6 – Conclusions**

This study contributes to the leadership field, as well as the social-cognition literature by exploring the contextualization of ILTs in an implicit measure and exploring the effects of two important contexts with the potential to influence ILT activation. The results suggest the IAT is a viable measure of ILTs but raise further questions in regards to how the IAT can be used as a predictor of altered ILT activation, or performance outcomes.

The results also suggest that follower behavior and affect both influence ILT activation, within the constraints of an in-lab IAT study and are consistent with the connectionist model of leadership. Perceptions of leadership are contextualized in our everyday lives. Leadership perception is a highly flexible and dynamic process such that perceptions are generated on the fly, depending on context. On the flip side, leader categorization theory suggests ILTs are fixed and stable across time (Epitropaki and Martin, 2004) and not able to account for environmental, situational and individual difference cues. The connectionist model of leadership is able to account for follower behavior and affect as they shape leadership perceptions and the results are consistent with the current literature which suggests ILTs are dynamic and context specific (Scott and Brown, 2006, Foti et al., 2008; Sy et al., 2010; Dinh and Lord, 2013, Snead et al., 2013). However, it is important that the connectionist model of leadership continue to be tested and a fuller understanding of the contextualization of ILTs is uncovered.

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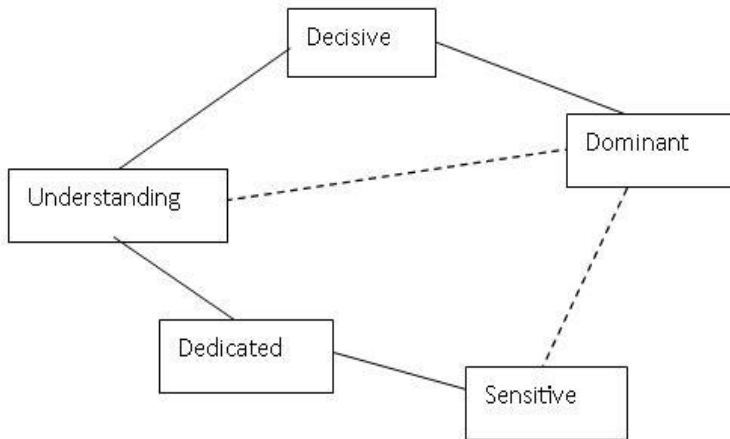
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**Figure 1**

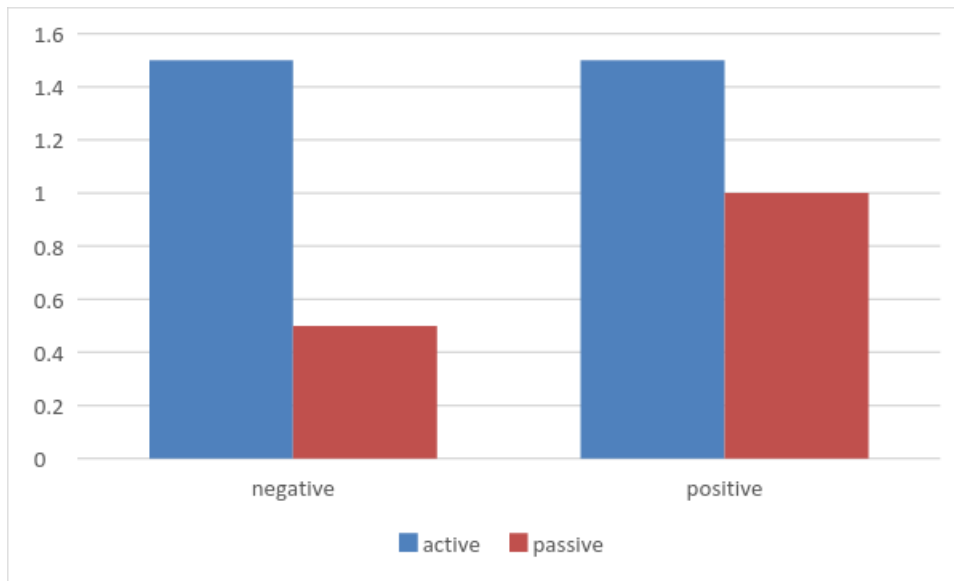
*Network of leader concepts*

Network showing connections between leader concepts. The solid lines indicate excitatory links and the dotted lines indicate inhibitory links. Links run in both directions in this network.



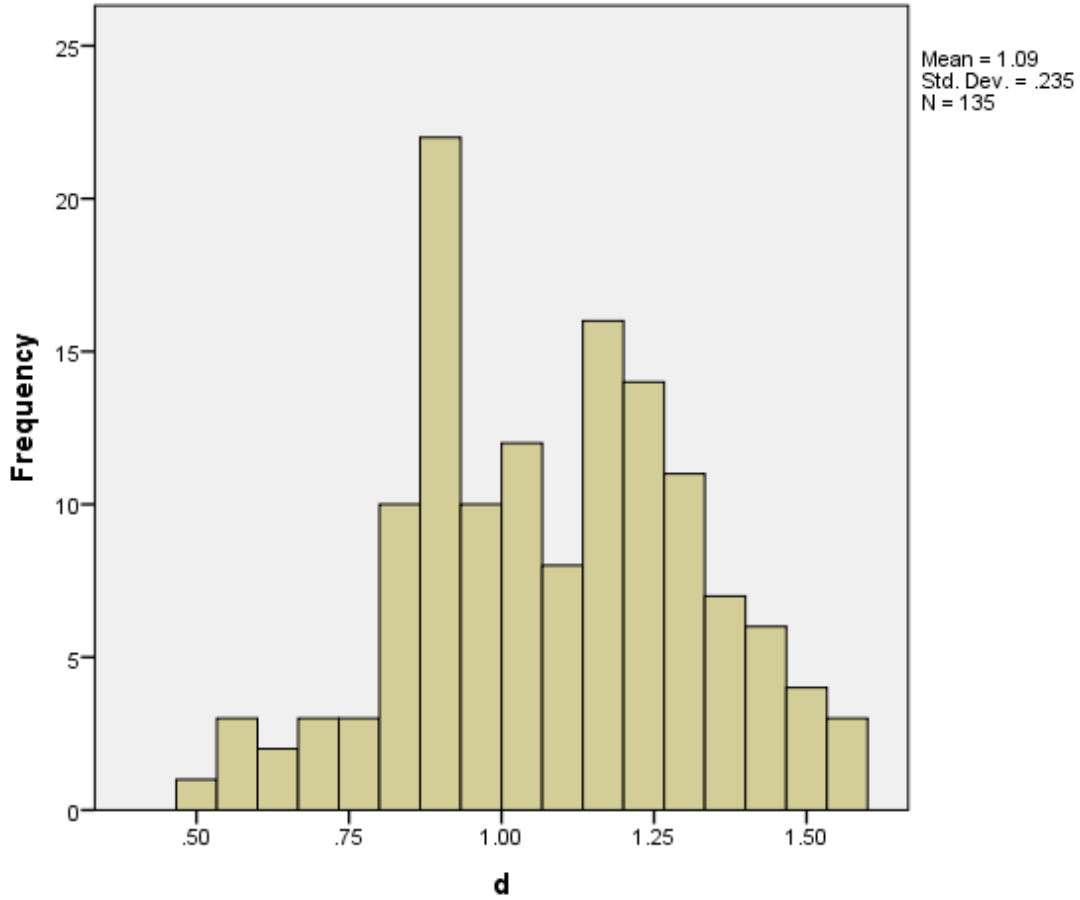
**Figure 2**

*Expected Interaction between follower behavior and affect*



**Figure 3**

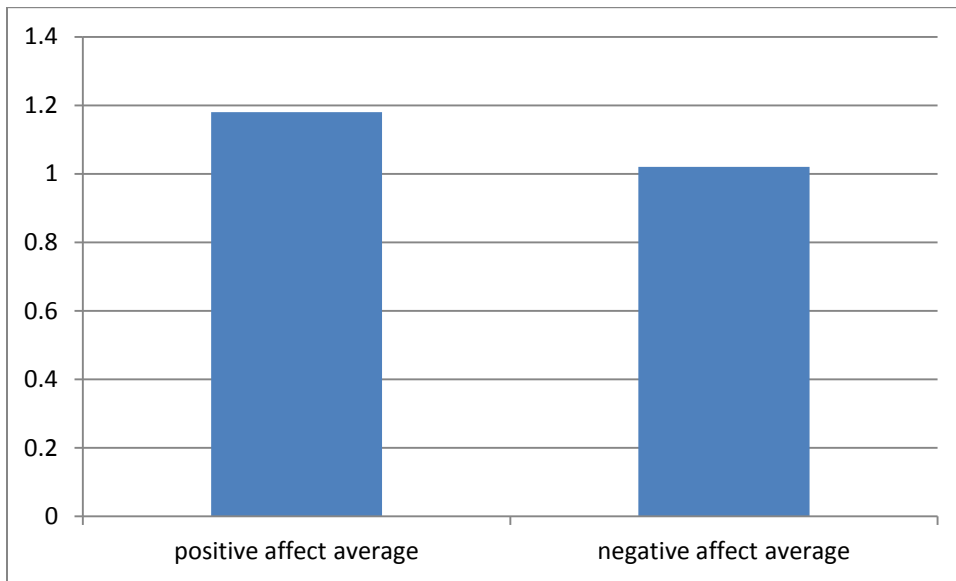
*IAT-D score span and frequency*



*Note.*  $N = 135$ . IAT-D scores range between -2 and 2. Positive IAT-D scores indicate an implicit preference for Visionary Leadership. IAT-D scores close to zero indicate no implicit preferences towards visionary or authoritarian leadership and negative IAT-D scores indicate an implicit preference towards Authoritarian Leadership.

**Figure 4**

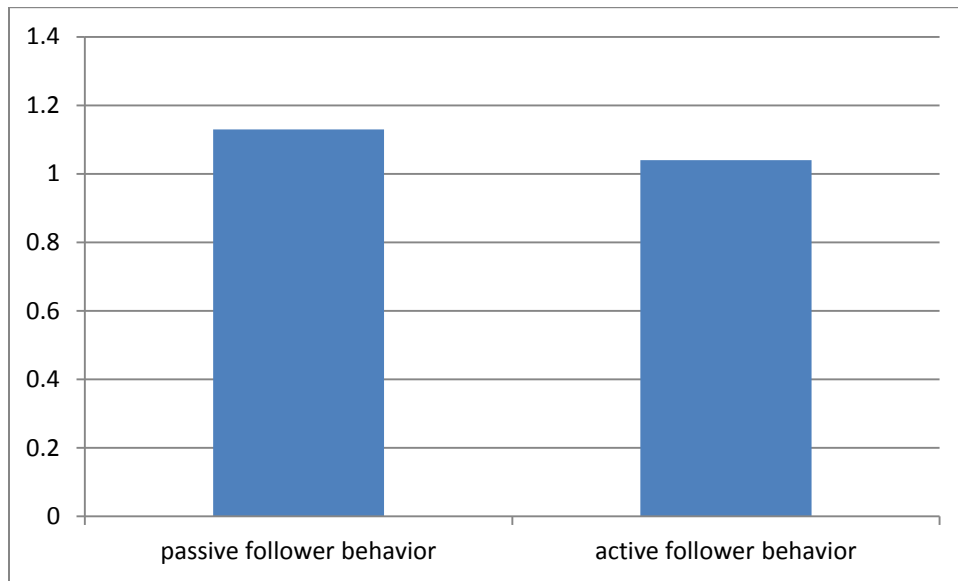
*Difference in IAT-D Means across Affect conditions*



*Note.*  $N = 63$ . IAT-D scores range between -2 and 2. Positive IAT-D scores indicate an implicit preference for Visionary Leadership. IAT-D scores close to zero indicate no implicit preferences towards visionary or authoritarian leadership and negative IAT-D scores indicate an implicit preference towards Authoritarian Leadership.

**Figure 5**

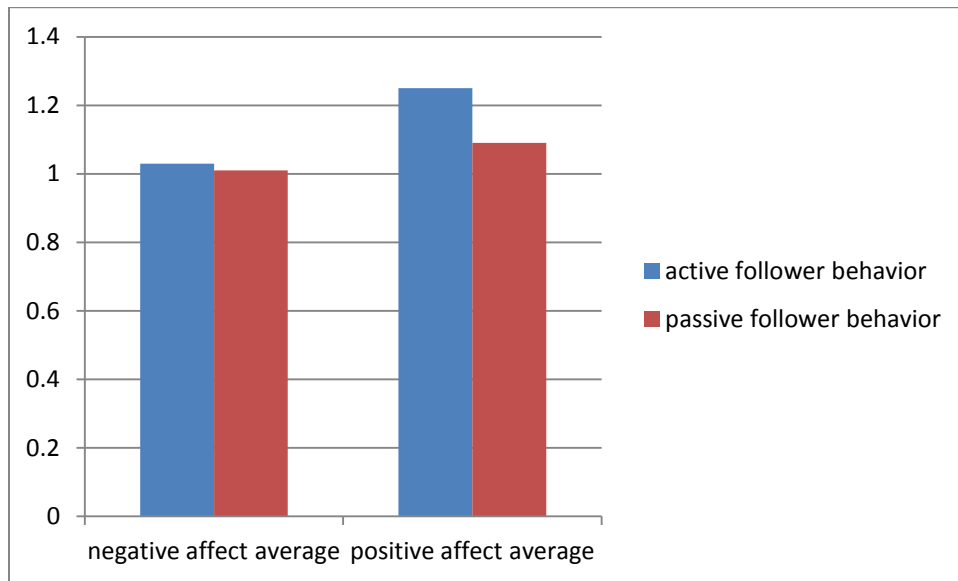
*Difference in IAT-D Means across Follower Behavior Conditions*



*Note.*  $N = 44$ . IAT-D scores range between -2 and 2. Positive IAT-D scores indicate an implicit preference for Visionary Leadership. IAT-D scores close to zero indicate no implicit preferences towards visionary or authoritarian leadership and negative IAT-D scores indicate an implicit preference towards Authoritarian Leadership.

**Figure 6**

*Non-Significant Interaction*



*Note.*  $N = 107$ . IAT- $D$  scores range between -2 and 2. Positive IAT- $D$  scores indicate an implicit preference for Visionary Leadership. IAT- $D$  scores close to zero indicate no implicit preferences towards visionary or authoritarian leadership and negative IAT- $D$  scores indicate an implicit preference towards Authoritarian Leadership.

**Table 1***Final ILT Cluster Means*

	1 (N = 41)	2 (N = 88)	3 (N = 101)	4 (N = 135)
Tyranny	4.30	3.04	4.40	2.19
Intelligence	4.93	5.57	6.22	6.19
Dedication	5.42	6.31	6.51	6.76
Sensitivity	4.26	5.02	5.50	5.85

*Note.* N = 365.

**Table 2***Pilot Study One Data Representing PANAS Scores by Affect Condition*

	N	Positive Scale Score	Negative Scale Score
Positive Affect	28	30.04	12.04
Negative Affect	24	26.42	31.33

*Note.*  $N = 52$ . Scores summed across items and averaged across participants. PANAS scores range from 10 to 50.

**Table 3**

*Pilot Study One Data Representing Percent Correct on Memory Task by Affect Condition*

	N	% correct
Positive Affect	28	.97
Negative Affect	24	.83

*Note.*  $N = 52$ . % correct represents the percent correct responses, averaged across participants.

**Table 4**

*Pilot Study One data of Mean Scores of Follower Behaviors as Representative of Follower Traits*

Trait	Mean	SD
conform	5.82	1.06
steady	5.32	1.12
available	5.63	0.99
comply	6.12	0.76
rarely raise questions	3.58	1.65
rarely complains	3.48	1.26
easily managed	5.61	1.09
work hard	3.92	1.47
engaged	4.71	1.61
eagerly share	4.04	1.79
off task	3.35	1.12
challenge	3.42	1.43
accomplish tasks	5.98	0.85
creative	4.02	1.53

*Note.*  $N = 51$ . There were 18 behaviors in each scenario. Some behaviors were similar. Only 14 behaviors were included in the pilot.

**Table 5**

*Pilot Study Two Data Representing PANAS Scores after Follower Behavior Information*

	% Correct	N	Positive Scale Score	Negative Scale Score
Passive Follower Behavior	81.6%	18	28.06	17.00
Active Followers Behavior	88.4%	16	32.81	16.06

*Note.*  $N = 34$ .

**Table 6**

*Pilot Study Three Data Representing PANAS Scores after Watching Videos and Reading Follower Behavior Scenarios*

Affect	Follower Behavior	N	% Correct	Positive Scale Score	Negative Scale Score
Negative	Passive	14	91.9%	28.36	22.00
Negative	Active	10	72.9%	28.80	21.20
Positive	Passive	14	78.1%	31.75	16.44
Positive	Active	16	72.4%	28.57	15.43

*Note.*  $N = 54$ . Scores on the PANAS range from 10 to 50.

**Table 7***Sequence of Trial Blocks in the Leadership (Visionary vs. Authoritarian) IAT*

Block	No. of trials	Function	Items assigned to e-key response	Items assigned to i-key response
1	20	Practice	Visionary Traits	Authoritarian Traits
2	20	Practice	Positive Images	Negative Images
3	20	Practice	Visionary traits + Positive images	Authoritarian Traits + Negative Images
4	40	Test	Visionary traits + Positive images	Authoritarian Traits + Negative Images
5	20	Practice	Authoritarian Traits	Visionary Traits
6	20	Practice	Authoritarian Traits + Positive Images	Visionary Traits + Negative Images
7	40	Test	Authoritarian Traits + Positive Images	Visionary Traits + Negative Images

*Note.* For half of the subjects, the positions of blocks one, three, and four were reversed with those of blocks five, six, and seven, respectively. During sorting, trait and image presentation was randomized and participants were presented with repeat traits and/or images.

**Table 8***Pilot Sorting Leadership Traits into Visionary/Authoritarian*

Trait	Sort Score	Visionary/Authoritarian
Objective	1.41	V
Indifferent	1.63	A
Democratic	1.3	V
Goal-oriented	1.43	V
Cool	1.16	A
Nonsensical	1.68	A
Senseless	1.66	A
Casual	1.18	A
Dedicated	1.48	V
Educated	1.4	V
Knowledgeable	1.44	V
<b>Dominant</b>	<b>1.94</b>	<b>A</b>
<b>Helpful</b>	<b>1.14</b>	<b>V</b>
<b>Demanding</b>	<b>1.86</b>	<b>A</b>
<b>Understanding</b>	<b>1.14</b>	<b>V</b>
<b>Sympathetic</b>	<b>1.08</b>	<b>V</b>
<b>Sincere</b>	<b>1.1</b>	<b>V</b>
Sensitive	1.1	V
Forgiving	1.08	V
Compassionate	1.08	V

Warm	1.04	V
Intelligent	1.24	V
Clever	1.28	V
Wise	1.2	V
Intellectual	1.38	V
Motivated	1.4	V
Hard working	1.46	V
Gentle	1.06	V
Thoughtful	1.02	V
Considerate	1.04	V
Fair-minded	1.1	V
Cold	1.96	A
Apathy	1.7	A
Unsympathetic	1.96	A
Uncaring	1.92	A
Cruel	1.98	A
Ill-advised	1.86	A
Daft	1.77551	A
Nonsensical	1.72	A
Uninterested	1.86	A
Pathetic	1.7	A
Disinterest	1.82	A
Unenthusiastic	1.82	A

Domineering	1.88	A
Pushy	1.88	A
Manipulative	1.92	A
Conceited	1.88	A
Selfish	1.88	A
Loud	1.82	A
Hungry	1.96	A
Obnoxious	1.86	A

---

*Note.* Traits sorted as 1 (Visionary) or 2 (Authoritarian). Scores closer to 1 represent sorting into visionary. Scores closer to 2 represent sorting into authoritarian. Words chosen based on score and affect.  $N = 51$ .

**Table 9***PANAS Means by Condition*

		Positive PANAS	Negative PANAS
Positive Affect	Mean	31.16	11.80
	N	44	44
	SD	6.95	2.04
Negative Affect	Mean	25.29	28.59
	N	63	63
	SD	6.21	13.86

*Note.* *N* ranged from 44 to 63 across affect conditions.

**Table 10***Descriptive Statistics (IAT-D's by condition)*

Affect	Follower Behavior	Mean	SD	N
Negative	Passive	1.01	0.22	31
Negative	Active	1.03	0.19	32
Positive	Passive	1.09	0.28	20
Positive	Active	1.25	0.23	24
Null	Null	1.07	0.20	28
Negative Average		1.02	0.21	63
Positive Average		1.18	0.27	44
Passive Follower Behavior Avg		1.04	0.25	51
Active Follower Behavior Avg		1.13	0.23	56
Overall		1.09	0.24	135

*Note.*  $N = 135$ .

**Table 11***Bivariate Correlations (IAT-D, demographics, PANAS)*

	D-Score	Ethnicity	Gender	Age	Semesters	Positive PANAS	Negative PANAS
IAT-D-Score	.72	-.003	-.202*	.017	.114	.185*	-.084
Ethnicity		-	-.075	.238**	.139	-.102	.025
Gender			-	-.263**	-.163	.015	.126
Age				-	.579**	.044	-.020
Semesters					-	-.050	-.028
Positive PANAS						-	-.482**
Negative PANAS							-

*Note.* \* represents a correlation is significant at the 0.05 level. \*\* represents a correlation significant at the 0.01 level. *N* = ranged from 131 to 135 due to missing data on the demographic variables.

**Table 12***Two-way ANOVA Between-Subjects Test of Follower Behavior and Affect Effects on IAT-D*

---

	Sum of Squares	df	F	Sig.	$\eta^2$
Follower Behavior	0.24	1	4.32	.040	0.04
Affect	0.58	1	10.67	.001	0.09
Affect x Follower	0.13	1	2.41	.124	0.02

---

*Note. N = 107.*

## Appendix A

### Sona Prescreen

Offermann, Kennedy, and Wirtz's (1994) ILTs Scale.

Using a 7 point scale, indicate how characteristic each of the items is for leaders (1 = not at all characteristic to 7 = extremely characteristic.)

1. Understanding
2. Helpful
3. Sympathetic
4. Sincere
5. Sensitive
6. Forgiving
7. Compassionate
8. Warm
9. Strong
10. Bold
11. Motivated
12. Goal-oriented
13. Dedicated
14. Hard-working
15. Intelligent
16. Educated
17. Clever
18. Wise
19. Knowledgeable
20. Intellectual
21. Charismatic
22. Energetic
23. Enthusiastic
24. Dynamic
25. Inspiring
26. Well-dressed
27. Classy
28. Well-groomed
29. Attractive
30. Masculine
31. Male
32. Domineering
33. Dominant
34. Manipulative
35. Loud
36. Demanding
37. Pushy
38. Conceited
39. Power-hungry
40. Selfish
41. Obnoxious

## **Appendix B**

### Consent Form

#### Psychology Students: Consent Form

Please read the following information. VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY Informed Consent for Participants in Research Projects Involving Human Subjects

Title:

#### **Adapting the Implicit Association Task to Measure Implicit Leadership Theories**

Investigators(s): Dr. Roseanne Foti, Dr. Rachel Diana, Dr. Neil Hauenstein, Dr. AK Ward,  
Kathleen Snead

I. Purpose of this Research/Project: to explore and understand implicit leadership theories. To examine ILTs from a cognitive perspective with an IAT.

II: You will be asked to complete a brief online survey. It will take approximately thirty minutes. You will be asked to complete a sorting task of which there are seven phases. You will be asked a series of demographic questions such as age, race, gender, and leadership experience.

III. Risks – There is no potential risk to you, the participant.

IV. Benefits - Participation in this study may help researchers understand leadership. You may request a summary of the results of this study by contacting the researcher, Katie Snead, at kbs87@vt.edu, which will be available by summer 2015.

V. Extent of Anonymity and Confidentiality - The researchers will not release the results of the study to anyone other than individuals working on the project without written consent. The investigators listed at the top will be given access to the computer task results in order to transcribe the data. All information given during this study will remain confidential. The task will provide information from a wide array of students from numerous courses to ensure a large number of participants; therefore, individuals will not be identifiable from any information submitted in the study.

VI. Compensation – You may earn .5 points of SONA extra credit for your psychology lecture course.

VII. Freedom to Withdraw - Your participation in this study is voluntary; you may discontinue your participation at any time without penalty. If for any reason you decide that you would like to discontinue your participation, simply leave the survey and do not complete it.

IX. After reading this document, if you agree to the information stated, agree below by signing your name.

X. Who to Contact for Research Related Questions: For questions about the research itself, or to report any adverse effects during or following participation, contact the researcher, Katie Snead, at [kbs87@vt.edu](mailto:kbs87@vt.edu). You may also contact Dr. Harrison, Chair of the Psychology Department's Human Subjects Committee, at [dwh@vt.edu](mailto:dwh@vt.edu) or Dr. Moore, Chair of the IRB, at [moored@vt.edu](mailto:moored@vt.edu).

XI. Only students 18 years of age or older may participate in this study.

Check Box: Yes, I have read the consent and agree to the terms.

Check Box: No, I do not consent.

---

### Management Students – Consent Form

Please read the following information. VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY Informed Consent for Participants in Research Projects Involving Human Subjects

Title:

**Adapting the Implicit Association Task to Measure Implicit Leadership Theories**

Investigators(s): Dr. Roseanne Foti, Dr. Rachel Diana, Dr. Neil Hauenstein, Dr. AK Ward, Kathleen Snead

I. Purpose of this Research/Project: to explore and understand implicit leadership theories. To examine ILTs from a cognitive perspective with an IAT.

II: You will be asked to complete a brief online survey. It will take approximately thirty minutes. You will be asked to complete a sorting task of which there are seven phases. You will be asked a series of demographic questions such as age, race, gender, and leadership experience.

III. Risks – There is no potential risk to you, the participant.

IV. Benefits - Participation in this study may help researchers understand leadership. You may request a summary of the results of this study by contacting the researcher, Katie Snead, at [kbs87@vt.edu](mailto:kbs87@vt.edu), which will be available by summer 2015.

V. Extent of Anonymity and Confidentiality - The researchers will not release the results of the study to anyone other than individuals working on the project without written consent. The investigators listed at the top will be given access to the computer task results in order to transcribe the data. All information given during this study will remain confidential. The task will provide information from a wide array of students from numerous courses to ensure a large number of participants; therefore, individuals will not be identifiable from any information submitted in the study.

VI. Compensation – By completing the part 1 survey and this in-lab study you may earn 2 supplemental activity points.

VII. Freedom to Withdraw - Your participation in this study is voluntary; you may discontinue your participation at any time without penalty. If for any reason you decide that you would like to discontinue your participation, simply leave the survey and do not complete it.

IX. After reading this document, if you agree to the information stated, agree below by signing your name.

X. Who to Contact for Research Related Questions: For questions about the research itself, or to report any adverse effects during or following participation, contact the researcher, Katie Snead, at [kbs87@vt.edu](mailto:kbs87@vt.edu). You may also contact Dr. Harrison, Chair of the Psychology Department's Human Subjects Committee, at [dwh@vt.edu](mailto:dwh@vt.edu) or Dr. Moore, Chair of the IRB, at [moored@vt.edu](mailto:moored@vt.edu).

XI. Only students 18 years of age or older may participate in this study.

Check Box: Yes, I have read the consent and agree to the terms.

Check Box: No, I do not consent.

## **Appendix C**

### Affect Manipulation

#### **Null:**

It is imperative that you provide your undivided attention to this study. Click next to continue.

#### **Positive Affect:**

It is imperative that you provide your undivided attention to this study. Please click on the link, below, and watch the following video. The video will open in a separate window. Have you headphones plugged in so you can hear the video audio. Once the brief video is completed, please return to the survey and click next. You will be asked to complete a brief survey afterwards.

<https://screen.yahoo.com/celebrity-jeopardy-sean-connery-anne-000000916.html>

#### **Negative Affect:**

It is imperative that you provide your undivided attention to this study. Please click on the link, below, and watch the following YouTube video. The video will open in a separate window. Have you headphones plugged in so you can hear the video audio. Once the brief video is completed, please return to the survey and click next. You will be asked to complete a brief survey afterwards.

<https://www.youtube.com/watch?v=xdngP6k2ToA>

## Appendix D

### Follower Behavior Information Manipulation

#### **Null:**

Click next to continue.

#### **Passive Scenario:**

Please read the following paragraph very carefully. It is important that you read and understand the following paragraph.

“You are the owner and boss at a small advertising agency. You have three employees. They typically conform to whatever you ask them to do. They provide steady results and are available when needed. They are easily directed and comply with instructions. However, they rarely raise questions or come up with new ideas. They are not particularly active participants in the workplace. Overall, they rarely complain about their work and are easily managed.”

#### **Active Scenario:**

Please read the following paragraph very carefully. It is important that you read and understand the following paragraph.

“You are the owner and boss at a small advertising agency. You have three employees. They typically work hard. They come up with new and inventive ideas. They are very engaged in meetings and eagerly share their ideas with others. However, they are sometimes off-task and challenge your authority. They sometimes work too independent from others at work. Overall, they accomplish their work and are a creative outlet for new and bright ideas.

## Appendix E

### Memory Task

The following survey is designed to ensure you understood the previous scenario about your employees.

In the following task you will be asked, in a series of questions, which of two behaviors, matches the behaviors of your employees. You will be made aware if you answered the questions correctly or not.

1. Your employees conform to whatever you ask them to do.

Or

Your employees work hard

2. Your employees provide steady results

Or

Your employees are sometimes off-task

3. Your employees are available when needed

Or

Your employees share their new ideas with others

4. Your employees comply with instructions

Or

Your employees challenge your authority

5. Your employees rarely raise questions

Or

Your employees are very engaged in meetings

6. Your employees accomplish their work

Or

Your employees rarely complain about their work

7. Your employees are easily managed

Or

Your employees are a creative outlet for new and bright ideas

## Appendix F

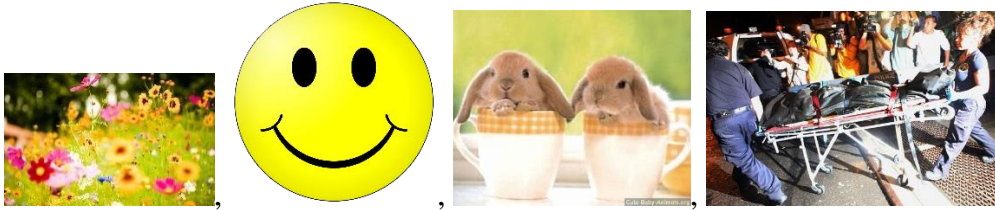
### PANAS

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you CURRENTLY feel this way. Use the following scale to record your answers:

	Very Slightly or Not At All	A Little	Moderately	Quite a Bit	Extremely
Active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
attentive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
determined	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
enthusiastic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Excited	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspired	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
interested	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proud	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Afraid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
nervous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jittery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
irritable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hostile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Guilty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ashamed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
distressed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# Appendix G

## IAT Positive and Negative Images



## **Appendix H**

### IAT Leader Traits

Traits presented:

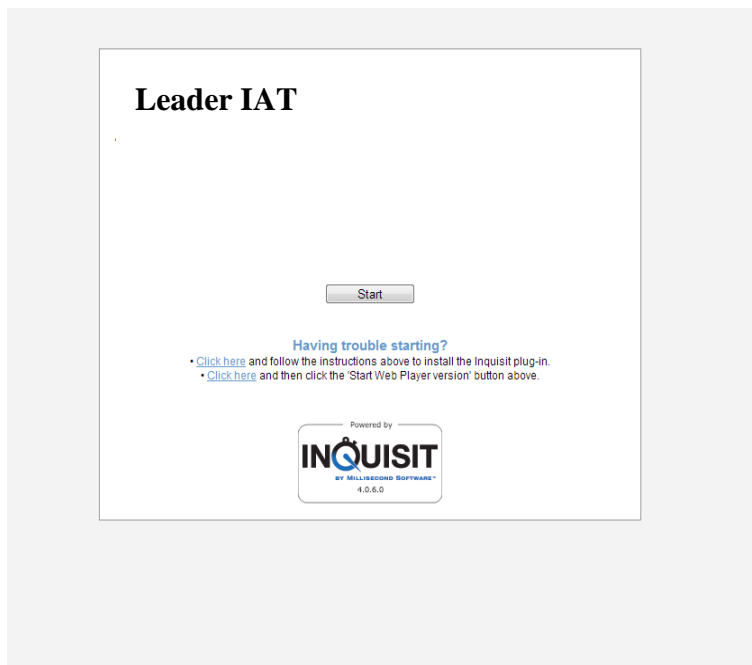
Dominant, demanding, cold, uninterested, ill-advised, disinterest, unenthusiastic, unsympathetic  
Helpful, understanding, sympathetic, sincere, warm, thoughtful, fair-minded, considerate

## Appendix I

### IAT Screen Images

Please raise your hand and a research will come by to assist you. You will now be completing an implicit association test, in which you will sort words and images into different categories. There are seven phases. There will be instructions before every phase. Please read these instructions very carefully. Click next to continue.

Page 1.



Page 2.

Visionary	Authoritarian
<p>Put your middle or index fingers on the E and I keys. See the above categories are visionary and authoritarian, reflective of two different leadership styles. When the item belongs to a category on the left, press the E key; when the item belongs to a category on the right, press the I key. Items belong to only one category. An x appears after an error. Fix the error by hitting the other key. The goal is to sort the items as quickly but accurately as possible.</p>	

Page 3.

Positive

Negative

Put your middle or index fingers on the E and I keys. See the above categories are positive and negative. When the item belongs to a category on the left, press the E key; when the item belongs to a category on the right, press the I key. Items belong to only one category. An x appears after an error. Fix the error by hitting the other key. The goal is to sort the items as quickly but accurately as possible.

Page 4.

Visionary or Positive    Authoritarian or Negative

See above, the four categories you saw separately now appear together. Remember, each item belongs to only one group. For example objective is visionary and therefore should be sorted to the left. Remember to place your index or middle fingers on the E and I keys, respectively. An x appears after an error. Fix the error by hitting the other key. Remember the goal is to sort the items as quickly but accurately as possible.

Page 5.

Visionary or Positive    Authoritarian or Negative

See above, the four categories you saw separately now appear together. Remember, each item belongs to only one group. For example objective is visionary and therefore should be sorted to the left. Remember to place your index or middle fingers on the E and I keys, respectively. An x appears after an error. Fix the error by hitting the other key. Remember the goal is to sort the items as quickly but accurately as possible.

Authoritarian

Visionary

Put your middle or index fingers on the E and I keys. See the above categories are authoritarian and visionary, reflective of two different leadership styles. Positive and negative have been removed from the sorting task and authoritarian is on the left and visionary on the right. When the item belongs to a category on the left, press the E key; when the item belongs to a category on the right, press the I key. Items belong to only one category. An x appears after an error. Fix the error by hitting the other key. The goal is to sort the items as quickly but accurately as possible.

Visionary or Positive    Authoritarian or Negative

See above, the four categories you saw separately now appear together. Remember, each item belongs to only one group. For example objective is visionary and therefore should be sorted to the left. Remember to place your index or middle fingers on the E and I keys, respectively. An x appears after an error. Fix the error by hitting the other key. Remember the goal is to sort the items as quickly but accurately as possible.

Authoritarian or Positive    Visionary or Negative

See above, the four categories you saw separately now appear together. Remember, each item belongs to only one group. For example objective is visionary and therefore should be sorted to the right. Remember to place your index or middle fingers on the E and I keys, respectively. An x appears after an error. Fix the error by hitting the other key. Remember the goal is to sort the items as quickly but accurately as possible.

## Appendix J

### Demographic Survey:

Please complete this brief demographic survey. You will be asked a series of demographic questions and leadership experience type questions. Please answer these questions as accurately as possible. Supplementary Questions and Demographics.

Race: \_\_\_\_\_

Gender: \_\_\_\_\_

Country of Birth: \_\_\_\_\_

Age (round up in years): \_\_\_\_\_

Semesters of college completed (not including current semester): \_\_\_\_\_

Please list all the leadership positions you have held AND how long you were in that role. (E.g. student council president, one year).\_\_\_\_\_

How long, in months, have you spent in a full time job (40 hours/wk): \_\_\_\_\_?

How long, in months, have you spent in a part-time job (< 40 hours/wk): \_\_\_\_\_?

**Click next to submit your results.**

## **Appendix K**

### Debrief Statement

#### Psychology Students: Debrief

Thank you for your participation in this study. You will be awarded .5 points of extra credit on your SONA account. The study was designed to assess your preference towards different leadership styles and more specifically to assess whether your mood and/or type of subordinates you have impact your preference towards different leadership styles. Please do not discuss the details of this study with others. It is important that individuals participating in the study be unaware of the purpose until complete. If you would like the results of the study, please contact me, Katie Snead, [kbs87@vt.edu](mailto:kbs87@vt.edu). Results should be made available by the summer of 2015.

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#### Management Students: Debrief

Thank you for your participation in this study. You will be awarded 2 points of supplemental activity credit. The study was designed to assess your preference towards different leadership styles and more specifically to assess whether your mood and/or type of subordinates you have impact your preference towards different leadership styles. Please do not discuss the details of this study with others. It is important that individuals participating in the study be unaware of the purpose until complete. If you would like the results of the study, please contact me, Katie Snead, [kbs87@vt.edu](mailto:kbs87@vt.edu). Results should be made available by the summer of 2015.