

**Contextual Constraints:
An Examination of Implicit Followership Theories**

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ABSTRACT

This study was designed to assess follower prototypes as dynamic structures. Connectionist theory is a good framework to understand the process by which followership perceptions are altered by contextual factors. Organizational culture, change in immediate leader and follower prototypes were measured in an applied setting across time to assess the dynamism of the cognitive networks of implicit followership theories. Change in culture and immediate leader was measured at three time points, across six months, during the acquisition of one organization by a second. Change scores were created by computing difference scores from surveys completed at the first time point to the second time point, three months later, to the third and final time point, three months later. There were no significant effects of change in culture on reported follower networks. There was, however, a significant effect of leader change at time points two and three when regressed on individual's follower networks. The overall findings of this study suggest that IFT's like leadership prototypes remain fairly stable across time (Epitropaki, 2004), but are subject to organizational change.

Table of Contents

1.0 – Introduction.....	1
1.1 – Leaders Traits and Behaviors.....	2
1.2 – Implicit Leadership Theories.....	4
1.3 – Implicit Theories as Dynamic.....	6
1.4 – Followership.....	11
1.5 – Implicit Followership Theories as Dynamic.....	13
1.6 – Organizational Factors.....	14
2.0 – Method.....	18
2.1 – Sampling Plan and Participants.....	18
2.2 – Design and Procedure.....	19
2.3 – Measures.....	21
3.0 – Analysis.....	25
4.0 – Results	28
5.0 – Discussion.....	32
References.....	40

List of Figures

Figure 1 - Normative follower trait network at time one.....	59
Figure 2 - Normative follower trait network at time two.....	60
Figure 3 - Normative follower trait network at time three.....	61
Figure 4 - Example follower trait network.....	62
Figure 5 - Within-subject repeated measure average similarity values between participant and normative networks of IFT across time.....	63

List of Tables

Table 1 – Intercorrelations of overall culture scores and subscale culture scores.....	48
Table 2 – Zero-order Correlations.....	49
Table 3 – Repeated measures analysis of within-subjects effects of time on participant follower trait network similarity with normative network.....	50
Table 4 – Regression analysis of effect of culture change from time point one to two on participant follower trait network similarity with normative network at time two.....	51
Table 5 – Regression analysis of effect of culture from time point two to three on participant follower trait network similarity with normative network at time three	52
Table 6 – Exploratory regression analysis of effect of culture from time point one to two on participant follower trait network similarity from time point one to two	53
Table 7 – Exploratory regression analysis of effect of culture from time point two to three on participant follower trait network similarity from time point two to three	54
Table 8 – Regression analysis of effect of boss change at time two on participant follower trait network similarity with normative network at time two.....	55
Table 9 – Regression analysis of effect of boss change at time three on participant follower trait network similarity with normative network at time three	56
Table 10 – Exploratory regression analysis of effect of boss change at time point 2 on participant follower trait network similarity from time point one to two	57
Table 11 – Exploratory regression analysis of effect of boss change from time three on participant follower trait network similarity from time point two to three	58

Appendices

Appendix A – IFT Measure.....	64
Appendix B – Word Pairs.....	66
Appendix C – Organizational Culture Scale.....	68
Appendix D – Demographic Questions.....	70
Appendix E – Consent Form.....	72

1.0 – Introduction

If an individual is perceived as a leader then that person has the ability to influence those people around him/her. Katz and Kahn (1978) called this ability, an influence increment. However, leadership does not reside only in the leaders but also involves followers. The influence increment is totally dependent upon the dynamic interplay between leaders and followers. Although research on leadership has been ongoing for many years it is only recently that attention has shifted to followers (Shamir, 2007). This recent shift in investigative research has resulted in a new focus on how followers define leadership and how such followers categorize people as leaders or non-leaders (Lord, Foti, & DeVader, 1984; Meindl, 1990, 1995), thus acknowledging that leadership perceptions are partially determined and shaped by followers (Shondrick & Lord, 2010). Little, however, is known about the follower role, and it is only very recently that researchers have noted this need to understand peoples' cognitions about followership (Carsten Uhl-Bien, West & Patera, 2010).

In contrast, cognitions about the leader role have been well researched. Findings suggest that people develop implicit leadership theories to streamline information processing of leader behaviors encountered every day (Rosch, 1977, 1978). Classic research suggests that implicit theories take the form of categories, which allow people to make quick unconscious judgments regarding a potential leader's fit into the category or not. Rosch (1977) suggested that individuals develop their categories around prototypes; prototypes are the associated features that represent the typical example of a category (Lord and Maher, 1991). Leadership Categorization Theory (Lord, Foti, & DeVader, 1984; Lord & Maher, 1991) suggests that encountering an individual with characteristics matching the stable leader prototype increases the odds of that person's behaviors fitting the prototype and being perceived as a leader (Lord et al., 1984). ILTs

set individual expectations for how a leader should behave and if perceivers view behaviors that are consistent with his/her leader categories then the process of leadership exists (Shondrick & Lord, 2010; Lord & Maher, 1991).

Research supports the concept that we maintain cognitive categories based on our leader prototypes, but the structures are not set in stone; cultural, environmental, and interpersonal differences impact individual leader prototypes and are reflected in leadership perceptions (Lord, 1984; Epitropaki & Martin; 2004; Den Hartog et al, 1999; Keller, 1999; Foti, Knee and Backert, 2008; Hanges, Lord & Dickson, 2000; Sy, et al., 2010). A more recent understanding of implicit leadership theories is that the activation of implicit theories is dynamic.

The process by which we perceive and understand leadership is the same process by which we perceive and define followership (Shondrick, Dihn & Lord, 2010; van Gils, van Quaquebeke, van Knippenberg, 2010). Individuals maintain categories about followers; an equally important role in the leadership process. Thus, the purpose of the current study is to investigate implicit followership theories. Specifically, I argue that followership perceptions will be affected through the activation of different followership prototypes, when experiencing organizational climate and leadership changes.

1.1 - Leader Traits and Behaviors

Early 20th century researchers specified traits correlated with perceptions of and the emergence of leadership. Intelligence was consistently correlated with leadership, (Mann, 1959; Stogdill, 1948). Other traits were commonly correlated with leadership though results were variable and moderator effects were explored (Mann, 1959; Fiedler, 1964). However, leader trait research slowed until researchers gained a better understanding of the direct relationship between traits and leadership, via the use of meta-analysis (Lord, DeVader, Alliger, 1986). Researchers

corrected for sampling error and accounted for most of the variability in earlier studies of traits. Researchers settled on three traits significantly correlated with leadership: intelligence, masculinity and dominance (Lord et al., 1986).

The relationship between intelligence and leadership is well established (Antonakis, 2011; Lord et al., 1986). The big five of personality are also related to leadership and when taken together significantly predict leader emergence; researchers found a multiple correlation equal to .53 (Judge, Bono, Ilies, & Gerhardt, 2002). Sets of traits may also predict leader emergence and effectiveness (Smith & Foti, 1998; Foti & Hauenstein, 2007). Individual differences between students, identified as emergent leaders, were examined; results indicated that high intelligence, dominance, general self-efficacy, and self-monitoring are correlated with leader emergence (Foti & Hauenstein, 2007).

Whereas the above research focused on correlates with leadership and leader emergence, here researchers examined perceptions of leader traits, and evaluated those perceptions across cultures (Australian white-collar employees vs. Chinese white-collar employees). Study results suggested perceptions of effective leader traits differ across cultures; traits that reduce the power differences between leaders and followers were rated higher by Australian rather than Chinese workers (Casimir & Waldman, 2007). Traits play a vital role in determining behavior; they have an indirect impact on visible leader behaviors and research suggests that they impact perceptions of leaders. While leader traits impact leader behavior and follower perceptions of leadership, the cognitions of followers play a vital role in the leadership process and should be investigated further (Hollander & Julian, 1969).

1.2 - Implicit Leadership Theories

Categorization Theory. Schemas are cognitive categories; perceivers use them to represent prototypical characteristics of objects as well as people (Cantor & Mischel, 1979; Rosch, 1977). In organizational settings, followers develop schemas to represent leaders (Engle & Lord, 1997; Lord, Foti & Phillips, 1982; Lord & Maher, 1991). These schemas are implicit constructions helping followers deal with the large influx of new and old information about leaders (Rosch, 1977).

In leadership perception, schemas are also known as Implicit Leadership Theories (ILTs). ILTs exist to aid sense-making of a potential leader's behaviors (Shondrick & Lord, 2010). Classic research suggests that ILTs are stable; people establish cognitive categories to organize and simplify perceived leader behaviors (Lord et al., 1984; Lord & Maher, 1991). The organization and structure of leader perceptions is called Leadership Categorization Theory (Lord et al., 1984; Lord & Maher, 1991). Categories are systematic; they are arranged hierarchically (also termed vertically), accounting for the level of abstraction within the category and they are arranged horizontally, accounting for contextual interpretations of the information at the specific hierarchical level (Lord, Foti & DeVader, 1984; Shondrick & Lord, 2010). There are three vertical levels within a particular category. The superordinate level is the most general level, providing a comprehensive construal of the category. The basic level is the most applicable level, providing a less abstract version of the category. The subordinate level is the most restricted level, providing an exclusive and narrower version of the category (Shondrick & Lord, 2010).

To determine whether a potential leader is in fact a leader, people develop schemas of prototypical leader characteristics, (Lord & Maher, 1991; Shondrick & Lord, 2010). Categories

develop around prototypes; prototypes are the most typical examples of a category (Rosch, 1977). Features of the prototype are shared among items in the category and are often used to indicate membership in the category (Rosch, 1977, 1978). Researchers suggest when a perceiver encounters an individual they categorize them as a leader or non-leader based on whether their behavior matches their leader prototype (Lord et al., 1984). The greater the number of similarities between the individual's characteristics and the leader prototype, the more likely that person will be viewed as a leader. Leadership theorists applied research from leadership categorization theory to support their investigation of ILTs and the understanding of perceptions and how these perceptions impact the interpretations of leader behaviors. Research supports that we maintain cognitive categories based on our leader prototypes (Lord et al., 1984).

Epitropaki and Martin (2004) explored the factor structure of ILTs and suggest that the prototypical characteristics of leaders are sensitivity, intelligence, motivation, dynamism, tyranny and masculinity. In addition, ILT researchers examined these leader prototypes and the impact they have on the quality of the relationship between leaders and followers (Epitropaki & Martin, 2005; Lord et al., 1984, Den Hartog, House, Hanges, Ruiz-Quintanilla, & Dorfman, 1999). Epitropaki and Martin (2005) found that the closer the match between the follower's perceptions of their leader and their leader prototype, the higher the relationship quality. In addition they found the differences between their leader prototype and perceptions of their leader indirectly effected employee attitudes (Epitropaki & Martin, 2005).

In other research, leader prototype stability was examined over time. Age, tenure and organizational position were explored as a test of Brown and Lord's (2001) proposition that ILTs vary due to individual level of work experience. Results suggest employees perceptions of leadership do not vary across work position or stage of work life. High and low tenure

employees maintain similar prototypes. While the ILT factor structure was the same across the employee's job (shopfloor or nonshopfloor) the strength of loadings across factors differed. Epitropaki and Martin (2004) indicated their results suggest only that the saliency of certain factors, within the ILT, may be dependent upon context. Perceptions of leadership, and gender and type of job were also explored. Women endorse more a more sensitive prototype than their male counterpart. Similarly, employees in male dominated work environments endorse domineering, pushy and manipulative as important components of leadership whereas employees in female dominated work environments endorse sensitivity and helping traits. Thus, consistent with Lord et al. (1984) ILTs can change, but like the schemas described by Rosch, the change is typically very slow and the cognitive categories formed around prototypical leaders are stable.

Researchers working on the GLOBE (Global Leadership and Organizational Effectiveness) project suggest that leader prototypes have culture specific leader attributes (Den Hartog, House, Hanges, Ruiz-Quintanilla, & Dorfman, 1999). Den Hartog et al. (1999) suggest culture (eastern versus western) is a contextual variable that impacts follower perceptions of leadership. There are certain traits (loner, ruthless, irritable, dictatorial), which are considered to be universally uncharacteristic of leadership. There are however, a number of leadership traits (risk taking, ambitious, self-sacrificial, sincere, sensitive, compassionate, willful, and enthusiastic) which can be considered culturally contingent. As such, it may be that leader prototypes are susceptible to change from the culture within which they exist.

1.3 - Implicit Theories as Dynamic

Leadership categorization theory provides a good model by which leader representations are formed and organized, though viewing a prototype as stable may overestimate an individual's ability to form such a large number of context specific prototypes, (Lord & Maher, 1991). If said

prototypes are stable then each new experience with a leader would be paired to a unique leader representation, (Lord, Brown, Harvey & Hall, 2001). A more recent understanding of implicit leadership theories is that they are dynamic; prototypes shift to fit the environment (Shondrick & Lord, 2010).

Proponents of dynamic leader prototypes suggest that each time an observer encounters a potential leader, the viewed behaviors can shift the pattern of activated units within a prototype (Lord et al., 2001; Shondrick & Lord, 2010). Fortunately assuming prototype activation is dynamic suggests that the activated patterns within the leader prototypes account for unique environmental circumstances to fit the situations' context. Implicit leadership theories can be viewed from a connectionist perspective, which suggests that prototypes are triggered on the fly and as such there is not a new prototype used for comparison when a perceiver encounters a potential leader (Lord, Brown & Harvey, 2001).

The connectionist perspective is based in cognitive psychology. Generally connectionism refers to the process by which units, that store information, are activated. Communication occurs between units within the same network. The accumulation of inputs (information) will determine whether that unit will be activated. If it does fire (or activate) then activation can spread within the network, (Smith & DeCoster, 1998). Unit to unit activation is similar to a neuron receiving excitatory or inhibitory inputs telling the neuron whether to fire or not to fire. For a unit to fire, like a neuron, it must reach an activation threshold, (Marcus, 2001).

In a connectionist network, firing units spread to other units, creating stable connections, until a prototype is established (Lord et al., 1984; Offermann et al., 1994). McClelland and Rumelhart (1986) and the PDP Research Group suggests that units act parallel to one another; a

prototype is formed when all units reach a state of rest, such that no units are sending excitatory or inhibitory messages to other units within the network.

Lord, Brown and Harvey (2001) examined a connectionist model of leadership schema activation; their model was constructed of three levels. The first level occurs when behaviors are displayed by a potential leader. The second level is the leadership prototype. It is at the second level of the Lord et al. (2001) model where traits are interconnected to influence what characteristics compose the leadership prototype. Contextual constraints exist at the third level; they impact perceptions of a leader and it is at this level that the prototypes are at their most dynamic. Lord et al. (2001) emphasizes the unit connections within the network. A connectionist model of implicit leadership theory suggests that leader prototypes can be altered based on the weight of each connection; when new behaviors are observed, the weighted connections change and the prototype is recreated (Lord et al., 2001).

Smith and Foti (1998) examined ILTs and found that leadership traits impact whether someone will be perceived as a leader. When the potential leaders exhibit high self-efficacy, high intelligence and high dominance, their behaviors activate a pattern within the prototype that is more likely to be perceived as prototypical of leaders. Smith and Foti (1998) examined perceptions using a pattern approach, observing networks of traits. When the potential leaders were only high on one or two of the leadership traits, they were less likely to be perceived as leaders due to less activation within the leader prototype. The results demonstrate that activation spreads from unit to unit, within a leadership network, when high self-efficacy, intelligence and dominance are present in the potential leader. As the number of observed leadership traits increase, the amount of activation within the network increases. This leads to a greater chance of the potential leader being perceived as a leader. The above research exists at level two; at the

prototype level. To a degree, their results parallel the findings of Foti and Lord (1987), who found that perceivers are likely to credit people in leader positions with leader behaviors, even when they don't maintain leader characteristics, simply because they have the label of leader. People whom exhibit only one of the three traits listed above can still be perceived as a leader; perceivers can ascribe certain behaviors to the leader or alter the prototype which would occur at level two, the prototype.

Observed behaviors are however not the only inputs that can alter a prototype; essentially any environmental change can alter activation within the network. Race, gender and personal experience were explored. Sy, Shore, Strauss, Shore, Tram, Whiteley, and Ikeda-Muromachi (2010) explored race and leadership and demonstrated activation within the prototype is subject to race. Race exists at the contextual level or third level of Lord, Brown and Harvey's (2001) model. Caucasian Americans are considered more prototypic of leaders than Asian Americans; Sy et al.'s results showed that 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).

Leader perceptions are also subject to contextual constraints due to gender biases (Hogue & Lord, 2007) and researchers have found that the gender structure between the emerging leader and perceiver also impacts leader perceptions such that female emergent leaders are less likely to be perceived as leaders when the perceiver is male (Foti, Knee & Backert, 2008). Finally, researchers have investigated the impact of personal experiences on prototype activation. Keller (1999; 2003) evaluated how individual experiences with mother and father figures impact on leader prototypes. Keller demonstrated that potential leaders are more likely to be perceived as a leader if there are behavior similarities between their caretakers and the potential leader.

Research examining contextual constraints (the third level), (Foti, Knee & Backert, 2008) demonstrated that ILT stability is subject to certain 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 in regards 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.

Epitropaki and Martin (2004) compared ILTs across two establishments to understand how prototypes are unique to certain jobs. Their results support implicit theories as stable, but also dynamic, at the third level (contextual constraints). They found that the ILT structure was similar across age and tenure. However, managers vs. non-managers perceived certain traits (dynamic, energetic, strong) as more important for business leaders than leaders in other arenas, and individuals in customer service perceived sensitivity as more prototypical of a leader than

people in manufacturing. Employees with different jobs and job knowledge shape their prototypes such that stored knowledge is weighted differently within their prototype, resulting in altered unit activation within the leader network.

The above research reveals disparities in ILTs across a number of person variables, environmental circumstances and contexts. The researchers explore ILTs and results indicate that they are, in fact, dynamic in nature. The connectionist model provides a cognitive framework by which prototypes are developed and altered.

1.4 - Followership

There are few empirical studies of followership, though recently researchers have begun researching how followers aid understanding of organizational and leadership processes.

Hopton, Christie, and Barling (2012) found the follower label leads to lower positive affect while the opposite is true for being labeled a leader. In turn, they explored how being labeled a follower impacts extra-role behavior and found that extra-role behaviors are performed less by persons labeled follower, (Hopton, Christie & Barling, 2012). Their research suggests that there is overwhelming negative connotation associated with the label of follower. There is obvious importance associated with follower or leader labeling. In their seminal work, Lord and Maher (1991) emphasized that leaders and followers alike rely on implicit theories to process social information and make social judgments. The process by which leader behaviors are observed and perceived is the same process by which follower behaviors are observed and perceived.

Researchers posit there exists a process paralleling implicit leadership theory: implicit followership theory (Shamir, 2007; Sy, 2010; Carsten, Uhlbiel, West & Patera, 2010; Shondrick, Dinh & Lord, 2010; van Gils et al., 2010).

There is very little research exploring IFTs and their role in organizational settings. Most researchers have focused attention solely on leader prototypes. However, like ILTs, people generate follower prototypes based on their experiences with followers (Ritter & Lord, 2007). The first examinations of IFTs began a few years ago. Following measure development approaches taken by Lord, Foti and DeVader (1984), in the early 1980s, researchers focused on understanding social constructions of followership and creating a measure of IFTs (Sy, 2010; Carsten et al., 2010).

Sy (2010) and Carsten et al. (2010) attempted to understand the content of IFTs. Sy identified a factor structure of IFTs and Carsten et al. furthered understanding of IFTs qualitatively by using interviews. Unlike ILTs, which were first examined from the follower's perspective, Sy (2010) examined IFTs from the leader's perspective. Carsten et al. (2010) examined followership schemas from the follower's perspective. When examined jointly they address the call by van Gils et al. (2010) to examine IFTs from both the leader and follower's viewpoints. Sy's (2010) measure of IFTs resulted in a three factor prototype composed of enthusiasm, industry, and good citizen and a three factor anti-prototype composed of conformity, insubordination, and incompetence. The two three-factor structures, prototype and anti-prototype compose the higher order structure identified by Sy (2010). His quantitative approach to examining IFTs was similar to a study of ILTs completed by Epitropaki and Martin (2004). All data was gathered at the most abstract level of followership, simply asking for prototypical behaviors of followers (Sy, 2010).

Similar to Lord and colleagues examination of leader prototypes, Carsten et al. (2010) explored social constructions of followership in various industries across organizational levels allowing for greater generalizability of their findings. They utilized a qualitative interview

method. Researchers interviewed subordinates across several companies. Making use of nine core questions they explored the follower role. They suggested followers maintain three constructions of followership: a more passive followership schema suggesting an obedience element to the social construction of followership, an active followership schema suggesting loyal and contributive elements to the social construction of followership, or a more proactive followership schema suggesting that social constructions of followership possess key interactive and collaborative elements. Researchers suggest studying perceptions of followership across contexts is necessary, because no one IFT is applicable to all situations and contexts (Shondrick & Lord, 2010; Lord et al, 1984; Carsten et al, 2010).

1.5 - Implicit Followership Theories as Dynamic

Interpreting IFTs from a connectionist perspective, van Gils, van Quaquebeke, and van Knippenberg (2010) suggested that contextual factors impact what traits exist within the prototype and influence perceptions of behavior and the pattern of trait activation. They highlighted a need to look at IFTs from both the perspective of the leader and the follower and suggested that there would be differences between leader and follower IFTs, as leader and follower roles and work experiences are dramatically different. Van Gils et al. (2010) go on to suggest that behaviors, observed in individuals outside the leader or follower role, can be incorporated into the implicit theory and augment leader or follower perceptions, indicating the implicit theories are dynamic (van Gils et al., 2010).

Other researchers suggest similar ideas; follower identities are socially constructed such that when one person acquires the leader role this conveys the follower role to others in the relationship, indicating that the followership schema depends upon the leadership schema (DeRue & Ashford, 2010). Subsequently, if there exists a past leader-follower relationship

between two individuals then it is likely that across time, the relationship will hold in new situations. Paralleling van Gils et al. (2010) DeRue and Ashford (2010) theorize that the greater the match between a person's implicit leadership theory or implicit followership theory and their own attributes, the greater the chance that they will claim that identity and grant the opposing identity to others.

People maintain social constructions of followership and Carsten et al. (2010) suggests that an individual's follower schema may be dependent on the organization within which they are developed: interactions with differing leadership styles, bureaucratic versus empowering climates, and the match between schema and work context. Researchers recommend further investigation of the interaction between followership schema and the organizational contexts in which they exist (Carsten et al., 2010).

1.6 - Organizational factors

Just as Lord et al. (2001) suggests there are contextual constraints which alter activation within the leader prototype, researchers suggest external factors can influence pattern activation within followership prototypes: work culture, changes in the task or job description, individual circumstances, such as the match between the follower prototype and work climate, as well as many other experiences in the organization, (DeRue & Ashford, 2010; Carsten et al., 2010; Sy, 2010; van Gils et al., 2010). Activation within the follower prototype is influenced by situations produced by an organization and by leaders (Bresnen, 1995; Carsten et al., 2010). Work climate may play a role in determining the type of follower prototype that is activated.

Carsten and Uhl-Bien (2012) studied the co-production of leadership and the role work climate has in moderating the relationship between beliefs and behavior. They found that followers within organizations with low autonomic work climates are less likely to voice

opinions and beliefs, (Carsten & Uhl-Bien, 2012). Empowering work climates allow followers to maintain a more equal relationship with their leader(s) and make decisions (Pearce & Manz, 2005; Carsten et al., 2010). Climates that promote sharing and initiative taking encourage proactive follower behavior and may influence perceptions of followership (Uhl-Bien & Pillai, 2007; Carsten, 2010).

Research suggests that environmental uncertainty and employee interdependence promotes the development of follower prototype of proactivity due to the threatening climate (Griffin, Parker & Mason, 2007; Grant, Gino & Hoffman, 2011). Proactive followers within a bureaucratic work climate, which encourages leader authoritarianism and top-down decision making, may exhibit altered prototype activation constructed around the perceived toleration of follower proactivity by the company. The opposite may be said for passive followers in egalitarian organizations, which encourage open dialog and autonomy (Collinson, 2006; Carsten et al., 2010).

Leadership and how one sees their place in the hierarchy established by the organization (follower role, leader role) may also influence the pattern of trait activation within the followership prototype. Even the follower's relationship with the leader may impact their follower prototype (Sy, 2010; Carsten et al., 2010). Sy (2010) suggests liking for leaders, relationship quality with leaders, trust in leaders, and job satisfaction are associated with a leader's follower prototype and anti-prototype.

In summary, IFTs are similar to ILTs; and are formed by the same process as ILTs. The connectionist perspective provides the frame for understanding IFTs as dynamic; contextual factors impact the activation of the follower prototype. However, current research has focused

on follower prototype measurement and underlying factor structure of IFTs and not the factors influencing the dynamic activation of the follower prototype.

Researchers suggest an individual's follower prototype may be dependent upon both individual and organizational level contextual variables (Carsten et al., 2010, van Gils et al., 2010; Grant et al., 2011; Shondrick et al., 2010). Organizational climate (authoritarian versus egalitarian) may play a role in determining change within follower prototypes as well as former and current interactions with leaders (Carsten et al, 2010; DeRue & Ashford, 2010).

The present study was designed to further understanding of IFTs. Past literature supports that prototypes may be relatively stable over time (Epitropaki & Martin, 2004). However, recently researchers have suggested viewing the prototype as stable may overestimate an individual's ability to form specific prototypes (Lord & Maher, 1991). Ritter and Lord (2007) propose follower prototypes transform with each experience; they shift to fit the environment (Shondrick & Lord, 2010). Researchers base these inferences upon connectionist theory. Prototypes are composed of units (traits); when a unit is activated (observed behavior), activation spreads across connected traits and once stable, a prototype is established (Lord et al, 1984; Offermann et al, 1994). Connectionist theory is employed as a framework to provide support for prototype activation as dynamic. The connectionist framework aids in understanding how the contextual inputs of organizational culture and leader changes influence changes in the activation pattern of IFT's. To measure the amount of change in IFT's, a normative employee follower prototype was generated by averaging the employee's networks, at time one, two and three (this process is described in the analysis section). Essentially it is the average correlation among prototype items, across employees, at each time point.

Hypothesis 1: Over time, compared to the normative follower prototype, the individual follower prototype will be less similar.

Hypothesis 2: Differences between the normative follower prototype and the individual prototype will be predicted by organizational culture change.

Hypothesis 3: Differences between the normative follower prototype and the individual will be predicted by leadership changes.

2.0 - Method

2.1 - Sampling Plan and Participants

Data was obtained from employees at a U.S. software company based on the east coast. The software company is composed of approximately 400 employees with 300 working at company headquarters. During time of data collection, the company was being acquired by a large public company composed of approximately 3000 employees, based on the West coast (with employees across the globe). I gathered data from the east coast headquarters only. Employees working at the east coast headquarters are divided in to three operational subgroups: Customer Service, Training and Professional Services. Each subgroup is headed by individual managers (composed of employees carried over from the east coast software company) and all subgroups operate under the company executives (all executives come from the large West coast public company). The hierarchy system of this company allowed for an evaluation of IFTs, within employee, while obtaining data from employees experiencing a wide range of unique management/leadership and hierarchical changes during the acquisition. I gathered data from all three groups within the company. An a priori power analysis, based on a large effect size (0.4 or above) with an $\alpha = 0.05$ and with three collection points, provided the necessary sample size, approximately 50 participants to complete the surveys at each time point (the same 50), (Lenth, 2006).

In the current study, approximately 300 informative/consent statement emails with survey links were distributed electronically via an email contact at the company. Of the 300 employees, a majority are male, Caucasian and over the age of 35. Participants were simply asked to volunteer. They were not required and were not informed prior to receiving the email. Initially 97 employees accessed the surveys; 53 employees granted consent, completed, and returned the

surveys, at time point one. For the second and third time points; 48 employees and 46 employees granted consent, completed and returned the surveys, at time point two and three respectively. After listwise deletion 43 participants were retained for data analysis (24 males and 19 females) composing a primarily Caucasian sample and the average employee age was 39.08 years. The mean age of the sample was compared to the average age of employees at the company, 35 ($t(39) = 1.99, p = .054$); the age and gender composition of the sample was representative of the average age and gender makeup of the company.

2.2 - Design and Procedure

Downsizing began in the early months of the acquisition, in the early fall of 2011, and had already occurred prior to the first wave of data collection in April 2012; although employees' retention within the company should have been relatively stable, movement within the branches of the company was yet to be determined and there remained a potential threat of job loss throughout the acquisition period, which continued through July 2012. Reorganization of employees within the company branches stabilized at the finalization of the acquisition; the acquisition ended in July 2012.

Data was collected at three points in time, across six months: at the start of the work quarter (first week in April, acquisition occurring), three months later (at the end of the work quarter, at acquisition end), and at the end of the next work quarter (another three months, three months post acquisition). Determination of a length of study time was primarily based on the length of a work quarter. Marks, Mathieu and Zaccaro (2001) define an episode as a "distinguishable periods of time over which performance accrues and feedback is available" (Mathieu & Button, 1992). Episodes can vary in length and Marks, Mathieu and Zaccaro (2001) argue when studying teams or organizations a researcher should target certain points in time.

Longitudinal studies vary in length, often lasting the length of a program initiated or change within the organization; some research cites 18 weeks between their first time point and second time point while others cite one year (Epitropaki & Martin, 2005; Cunningham, Woodward, Shannon, MacIntosh, Lendrum, Rosenbloom & Brown, 2002; Liu & Fu, 2011). Epitropaki and Martin (2005) argued that one year is sufficient to see ILT change due to the necessity of repeated encounters with a leader. I would argue that employees encounter their peers more often than their boss and that six months is a sufficient time period to see changes in participant IFTs. Furthermore, due to the high levels of change in this company, it is expected to see significant differences in perceived culture after far less than one year. Often, companies provide company performance levels to employees quarterly, with organizational expectations at the start of each quarter (episode). That being said, two quarters or six months, was chosen as long enough time for culture changes to occur. Most importantly the end of the first quarter, what would be the second measurement cycle, coincides with the end of the acquisition and the end of a distinguishable episode. Questionnaire links were sent, via email, to leaders and employees whom volunteered and consented to participate in the study. Participants were given one week to complete the surveys. Surveys received after one week were not included in the analysis. By providing participants with a week, I was able to obtain a great percentage of participation while allowing flexibility in completing the surveys outside of the office, but also avoided unexpected or unexplained contextual differences that could have occurred during the work week or days following the survey window. The one-week window acted as a control for any company changes experienced by participants. Each participant was emailed a consent statement and instructions with a link to the surveys. This consent statement was also the first page of the surveys. There was a place for participants to state agreement to participation before moving on

to the next page containing their first survey. There is very little risk involved with this data but as an extra precaution each participant was given an anonymous subject code, which was described in the instructions (composed of Gender, day of birth, and first two letters of their last name). (see appendix E). At each time point participants received an email with a new link with the same consent statement, to access the consent form and the three surveys; after consenting on the first page participants were instructed click finish to complete the first page, then use the provided URL to move on to the first survey, and after completion of the first survey the participant could move on to the second and then the third. After completing each survey, they were automatically directed to a new URL to move on to the next survey. See appendix E for the full consent form and instructions.

To counterbalance any questionnaire effects, survey questions were ordered in six patterns (IFT/OCS/Demo, IFT/Demo/OCS, OCS/IFT/Demo, OCS/Demo/IFT, Demo/OCS/IFT, Demo/IFT/OCS). Participants were emailed the consent statement and instructions with a survey link three times in a six month time period. They were asked to complete the survey within a weeks' time (allowing them time to complete the surveys but also controlling for any effects caused by date of completion.) Survey results were kept on a password protected Virginia Tech online survey database and then exported to excel directly. No names were attached to the data.

2.3 - Measures

Implicit Followership (IFT)

Perceptions of the follower prototype were measured by asking participants to complete a brief survey developed by Sy (2010). The survey contains 18 items and measures a six-factor IFT structure (Industry, Enthusiasm, Good Citizen, Conformity, Insubordination, Incompetence), with three items per factor. Sy's reported scale reliabilities are, .86 .74, .71, .83, .82 and .81,

respectively. Each item was rated on a scale of 1 (not at all characteristic) to 10 (extremely characteristic), to the degree the item represented a follower. An example item is *hardworking*; for the complete survey, see Appendix A.

The survey was presented to participants in a different format than the one created by Sy (2010). Each question on the IFT questionnaire was made into a word pair, (e.g. productive ----- loyal). Participants were asked to rate the words on how related they are within the context of a follower, with one being not at all related and 9 being extremely related. This did allow participants to choose an average answer (5). To reduce the amount of time required by participants only 12 items were retained for use. To maintain the factor structure, and reduce the number of items, the lowest factor loading item from each factor was removed. The remaining items associated with each factor were: industry (Hardworking, productive), enthusiasm (excited, happy), good citizen (reliable, team player), conformity (easily influenced, follows trends), insubordination (rude, bad tempered), and incompetence (uneducated, inexperienced). There was then $n(n-1)/2$ pairs for a total of 66 word pairs. For an example question and the abbreviated list of word pairs, see Appendix B. For the purpose of this study, networks are created by **The Knowledge Network Organization Tool (Knot) Software**, (Schvanveldt, Durso & Dearholt, 1998) for each individual. Essentially, Pathfinder creates a model, or network, based on each participant's ratings of the similarity between the each word pair. Each statement in the model is potentially represented as a node in the network. Word pairs that the individual rated as high in similarity are closely linked in the participant's model. Statements that the individual rated as low in similarity are less closely linked in the participant's model. Pathfinder represents the closeness of the link between of statements with a numerical weight. The computation of similarity values will be described in more detail in the analysis section.

Organizational Culture Scale.

The Organizational Culture Scale (OCS) specifically measures factors associated with organizational culture, providing insight into the communication between leaders and followers. Developed by Glaser, Zamanou, and Hacker (1987), the OCS measures six subscales: teamwork, morale, supervision, involvement, information flow and meetings and is composed of 31 items rated on a scale of 1 (to a very little extent) to 5 (to a very great extent). Teamwork is composed of six items (e.g. people I work with are direct and honest with each other). Morale is composed of five items (e.g. this organization respects its workers). Supervision is composed of seven items (e.g. when I do a good job my supervisor tells me). Involvement is composed of four items (e.g. I have a say in decisions that affect my work). Information flow is composed of four items (e.g. I get the information I need to do my job well). Meetings is composed of five items (e.g. decisions made at meetings are put into action). To reduce the amount of time required of participants the OCS was reduced in length. Factor loadings were unavailable for individual items but were presented for each factor. Therefore the factor with the lowest reliability estimate, teamwork, and the scale of least interest, meetings, were removed from the measure, for study purposes. The final length of the OCS measure was 20 items for the reduced survey see Appendix C.

In the current study, an OCS scale score was determined by summing across all items, and an overall Cronbach's alpha was computed for the OCS for time points one, two and three (.93, .92, .92) respectfully. Intercorrelations between all subscales and subscale reliability for each time point can be found in Table 1. All subscales were highly correlated, providing support for the use of the whole measure scale scores in creating culture change scores. Two difference scores were computed on the overall OCS score to create culture change. This was done by

subtracting the time one scores from time two and then time two scores from time three, and taking the absolute value. The absolute value of change was used; for the purpose of this study, interest was in change generally, rather than change oriented either positively or negatively.

Boss Change Question.

Question eight, within the demographic and job change questionnaire, is specific to evaluating hypothesis three. Question eight allowed me to dichotomize between participants that have the same boss or do not have the same boss across time points. Since it was hypothesized that differences in IFTs will be predicted by boss change, question eight was dichotomized such that: 1.) no boss change was set equal to zero and 2.) change in boss (boss change) was set to one.

Demographic and individual job change questions.

In addition to having participants complete the IFT and OCS measures, at three time points, they were also asked a series of demographic questions to assess any additional variables that may be related to the changes resulting from the acquisition: 1) gender, 2) race, 3) age, 4) education, 5) length of employment, 6) number subordinates, 7) degree of change in current job, 8) report to someone different, 9) boss style change, 10) job change with new boss, 11) finish a major project recently, 12) negative emotional impact, 13) positive emotional impact, and 14) degree identify self as leader? (see appendix D).

3.0 - Analysis

The *KNOT* software generated Pathfinder network models, which represented each participant's follower trait network. Each item in Sy's (2010) IFT measure (reduced for purpose of study) represented a concept pair, mainly, the relationship between follower traits. Three Pathfinder networks were generated using each participant's proximity data from time points one, two, and three; this data represents similarity/dissimilarity between concepts or item pairs from Sy's (2010) IFT measure.

In order to generate each individual's network, the software first examines coherence. Coherence represents how transitive the proximity ratings are, such that item a, is equal to item c, through item b. Participants that generate low coherence values violate this logic in their responses to the word pairs. For example, a person may respond to the word pair, happy-rude, with a 1 (not at all similar), then rude-excited, with a 7 (very similar) and then happy-excited, with a 7 (very similar). Such responses are inherently contradictory. If happy and excited are said to be similar and rude and excited are said to be similar, then it follows that happy and rude should also be similar. If a participant repeatedly violated this logic, their coherence value would decrease. Once coherence falls below .2 (Schvaneveldt, 1998) it was likely the participant was not paying attention to the surveys. Such results were excluded from data analysis. Given that data was collected from each participant at three time points, if a participant's coherence value fell below .2 at any one or more time point, their data was excluded. After computing coherence values for each participant, four participants were removed from further analyses, dropping the participant number to 39 (24 males, 15 females).

Follower trait networks were then derived for the remaining participants. The Pathfinder procedure is based on each individual's evaluation of proximity (distance) of pairs of follower

traits (pairwise comparisons), existing within a symmetric matrix. Traits are represented by nodes. A link between two nodes is included in the generated network if and only if the link is a minimum length path between the two nodes. E.g. if given three pairwise comparisons (between 1 and 9) $A \rightarrow B = 1$, $A \rightarrow C = 5$, and $B \rightarrow C = 2$, the direct link between $A \rightarrow C$ will not exist because $A \rightarrow B + B \rightarrow C = 3$ is less than 5 (Lim & Klein, 2006).

KNOT reduces the raw proximity data to a least-weighted path that links all of the terms. The algorithm for calculating the least-weighted path can be modified by adjusting two parameters, r and q . As r and q increase, the number of links in the resulting networks usually decreases and represents the most salient relationships in the raw proximity data (Schvaneveldt, Durso & Dearholt, 1998). Schvaneveldt et al. (1998) suggest that r be set to infinity; and q is set to $n-1$, (12 was the number of traits examined and is equal to n , so q is equal to 11). These parameter values allow for the fewest links in a network for a particular set of data.

Normative follower trait networks were derived using *Knot*, as well. *Knot* compiled the normative networks, by statistically averaging across the proximity files, for each time point (Day, Arthur & Gettman, 2001). The normative networks produced eleven links for each time point, all with coherence values above .90. The normative networks for time points one, two, and three appear in Figures 2, 3, and 4, respectively. The aggregated (normative) networks look very similar, but interestingly, they no longer look like networks, rather they form a continuous line with each node composed of two links (or one for the end nodes). The most alike traits align next to one another such that bad temper is connected to rude, which in turn is connected to inexperienced and so forth.

This is quite dissimilar from the individual networks which take the form of a web (see Figure 1). An example individual follower trait network appears in Figure 4. In the current data,

the average number of links within the follower trait networks for time points one, two, and three were 17.47, 16.97, and 16.87, respectively. A majority of the individual networks, across all three time points, are centered on the more positive attitudinal traits (team player, excited, happy, reliable), with at least two nodes consisting of three or more links. The remaining traits then branch off of this central cluster of traits, usually in the form of a negative trait branch, passive branch and proactive or diligent follower branch. Each individual network, across individuals and across time points, varied but appeared similar in form.

The value of most interest is similarity. Similarity represents the correspondence between links within two networks. It is calculated by dividing the number of common links (same linked nodes in both networks) by the total number of unique links in the two networks. In the current study, similarity values were calculated for each participant's follower trait network compared to the normative network, at each time point, and a similarity value was computed for each participant three times.

The software also computed a third value, correlation, which represented the relationship between two trait networks. That value is derived by calculating the correlation between the participant's responses to each word pair, and the normative response to each word pair, then averaging these correlations for a single value. For the purpose of this study, coherence values were used to remove any participant from the study that likely lacked attention, and the correspondence or similarity values were used in repeated measures analysis of variance (ANOVA) to test each hypothesis. Correlation values, associated with the pathfinder networks are within Table 2 and are the correlations between variables one through five: similarity of individual with normative for time points one, two and three, and similarity of individual networks from time point one to two and two to three. (see Table 2).

4.0 - Results

Means, standard deviations and correlations were computed and examined; correlations between individual and normative network similarity scores, culture change, boss change and gender are included in Table 2. The correlations between the individual and normative network similarities, at time points one, two, and three, were significant, with time one and two being the most significantly related ($r = 0.75, p < .001$). Similarity of individual networks, across time, are also included in the correlation table. It is interesting to note that individual similarity values from time point two to three is not significantly correlated with individual similarity from time point one to two ($r = 0.03, p = ns$). This is to say that an individuals' network is similarity is uncorrelated across time. Culture change from time one to two and two to three were significantly related ($r = 0.72, p < .001$). Culture change scores from time point one to two were not significantly related to the normative similarity scores at time 2 ($r = 0.10, p = ns$) and culture change scores from time point two to three were not significantly correlated to the normative similarity scores at time point 3 ($r = -0.29, p = ns$). However, culture change from time point two to three was negatively and significantly correlated with individual similarity from time point two to three ($r = -0.56, p < .001$). Few demographic questions provided correlations of interest. Boss change at time two was significantly correlated with normative similarity scores at time two ($r = 0.48, p < .001$) and boss change at time three was significantly and negatively correlated with normative similarity scores at time three ($r = -0.41, p < .05$). A small majority of participants were male and this question providing little information regarding the variables of interest.¹

To test hypothesis 1 (compared to the normative follower prototype, individual follower prototype will be less similar, over time), a repeated-measures analysis of variance evaluating

¹ Additional demographic and job related variables were examined. These demographic variables resulted in no significant correlations or effects.

mean differences, was conducted. The repeated-measures ANOVA was conducted using the repeated measures of the similarities between the three pathfinder networks provided from each participant and the normative follower pathfinder networks, at each time point, for a total of three similarity measures. The data did not pass the *Mauchly's Test of Sphericity* ($p < .001$). As a result, *Greenhouse-Geisser's* correction, which adjusts the degrees of freedom was used for interpretation. The results of the repeated measures ANOVA did not indicate a significant effect of time on followership perceptions ($F(1.55, 58.70) = 1.07, p = .336$). The ANOVA table can be viewed in Table 3. Figure 5 provides a graphic representation of IFT change from time one to two to three.

To test hypothesis 2 (differences between the normative employee follower prototype and the individual employee prototype will be predicted by organizational culture change), similarity values calculated for hypothesis 1 were used again. Perceived culture was measured three times. Since it was hypothesized that differences in IFTs will be predicted by culture, difference scores were computed from time point one to two, and two to three. This was done by subtracting time two scores from time one scores and taking the absolute value. This was repeated for time point two to three. Culture change from time point one to two was regressed on the similarity values from time point two. Culture change from time point two to three was regressed on the similarity values from time point three. The results do not suggest a significant relationship between the culture change from time point one to two regressed on the similarity values computed for time point two ($F(1,37) = 0.41, p = .53$). There also was not a significant effect of culture change scores from time point two to three on similarity values computed for time point three ($F(1,37) = 3.39, p = .07$). The regression analyses can be viewed in tables 4 and 5. In addition to testing this hypothesis by creating similarity scores between the individual and

aggregate at each time point, exploratory analyses were conducted on individuals IFT similarity across time by creating similarity scores from an individuals' follower network at time point one to two, and two to three. Culture change from time point one to two was then regressed on individual similarity from time point one to two. Interestingly, the results do not suggest a significant effect ($F(1,37) = 0.61, p = 0.44$), however there is a significant effect when culture change from time point two to three was then regressed on individual similarity from time point two to three ($F(1,37) = 16.61, p < .001$). Upon examination of the means, culture change was greatest from time point two to three and similarity scores lowest, as seen in table 2. The regression analyses can be viewed in table 6 and 7.

To test hypothesis 3 (differences between the normative employee follower prototype and the individual employee will be predicted by leadership changes) similarity values were computed between the normative and individual at time points two and three. Whether an employee experienced a change in boss (literally) was measured at all three time points. These dichotomized boss change scores were regressed on the similarity values between the normative and individual networks, at time point two and three. Those employees experiencing a recent shift in their report structure demonstrated greater changes in their follower prototype compared to the normative (similarity values between the normative and individual derived networks), than those without a change in their report structure. Results suggest that there is a significant effect of boss change at time 2 on similarity values with the normative at time point two, ($F(1,37) = 10.94, p < .01$). Results also suggest that there is a significant effect of boss change at time 3 on similarity values with the normative at time point three ($F(1,37) = 7.42, p < .01$). Change in leader is associated with lower similarity values. Tables for change in boss at time two and time three by similarity values with the normative can be viewed in tables 8 and 9.

Exploratory analyses were performed to examine the relationship between similarity scores and reported job similarity. Results suggest that there is not a significant effect of boss change at time 2 on individual similarity values from time point one to two, ($F(1,37) = 0.33, p = .57$). However, results suggest that there is a significant effect of boss change at time 3 on individual similarity values from time point two to three ($F(1,37) = 8.64, p < .01$). Tables for change in boss at time two and time three by individual similarity values can be viewed in tables 10 and 11.

5.0 - Discussion

The purpose of this study was to demonstrate the dynamic nature of implicit followership theories. Following from a connectionist model of implicit leadership theories, this study was an attempt to examine a connectionist model of followership schema activation. In Lord, Brown and Harvey's (2001) connectionist model of leadership schema activation, behaviors, exhibited by a potential leader, exist at the first level. The second level is the leadership prototype. Contextual constraints are present at the third level. The current study examined the second level, where traits are interconnected composing the followership schema, across three time points in a single organization, allowing researchers to observe activation changes in an individual's IFT, resulting simply from time.

The study simultaneously measured the organization's culture and change in direct leader; contextual constraints, existing at the third level in a connectionist model of schema activation. Culture was measured to observe any impact it might have on perceptions of followership. If a connectionist model of implicit leadership theory is applied to followership, then follower prototypes can be altered based on the weighted connections within a follower trait network; when an individual experiences change (culture, boss), the connection weights change and the prototype is recreated (Lord et al., 2001). In other words, when an employee experiences extreme culture change in the form of company morale, supervision, flow of information within the organization, and/or involvement within the organization, certain traits within the prototype gain or lose importance, altering the connection weights within the network, resulting in an altered reported network of followership perceptions.

It was hypothesized that an employee's follower prototype would be less similar to the normative follower prototype (measured and aggregated at each time point), over time. This

position was not supported in a repeated measures analysis of variance of the similarity scores between the aggregate and individual networks. Though not significant, the weighted connections within the normative follower networks were not exact replicas across the three time points, nor did any individual report the same network across all time points. These findings indicate that time alone does not sufficiently alter the weighted connections within their implicit followership network.

It was suggested that change in culture may sufficiently predict the change in an employee's follower prototype. Culture did not influence the employee network, such that change in culture did not predict the calculated differences between the normative employee follower prototype and the individual employee prototype, over the course of six months. Culture change was most apparent from time two to three but did not predict change in followership perceptions.

The third hypothesis was simply that having a shift in leadership, or an individual's boss, would predict differences between the normative follower prototype and an individual's follower prototype across three time points. The study results indicate change in boss, may be a strong determinant in understanding the dynamism of follower prototypes. The third hypothesis was supported, suggesting that a shift in direct hierarchical structure significantly impacts an individual's follower trait network. In this situation, boss change at time point two, mid-way through the study significantly impacted follower perceptions at time two and boss change at time point three significantly impacted follower perceptions at time point three. Results could be interpreted such that the organization was experiencing the greatest shifts in hierarchy just prior to time point two, three months into the study and the most cultural changes during the time

following the shift in boss, prior to data collection at time point three. It is during this time that change was most apparent.

In addition to tests of the study hypotheses, exploratory analyses were conducted and proved fruitful. When an individuals' follower network was examined, across time, and similarity values were computed from time point one to two, and two to three support for the connectionist perspective was established; the greater an individual's change in culture from time point two to time point three (when culture change was most apparent), the greater the differences in their follower trait network at time point three. Exploratory analyses also showed that change of boss at time point two impacted the similarity between an individuals' network from time point two to three (also when culture change was greatest, from time point two to three).

In recent years there has been a call for research examining the role of context on follower and leader perceptions (Carsten et al, 2010; DeRue & Ashford, 2010). Sy, Shore, Strauss, Shore, Tram, Whiteley, & Ikeda-Muromachi (2010) studied the connectionist model of leadership and the contextual factors of race and occupation. In this study, leadership perceptions were examined using the Global Leadership Impression (GLI) Scale. Researchers demonstrated that leadership perceptions were in fact influenced by race, such that leadership perceptions of Asian Americans were higher when the fit between race and occupation was best. Consistent with the findings of Sy et al. (2010), the results of the current study support contexts' effect on perceptions by showing reduced similarity between the individual and normative follower prototypes, when boss change was high. Though time alone was not a strong manipulation of the follower prototype, boss change did predict differences between the individual and normative follower networks. Researchers have also examined the role of gender

stereotypes on leadership prototypes (Johnson, Murphy, Zewdie, & Reichard, 2008). Study results suggested that gender of leader impacts what traits will be associated with leadership (Johnson et al., 2008). Much like the previous study, these results suggest that context, in this case, gender, influences prototypes. Current research, on the follower side, has focused on follower prototype measurement and the underlying factor structure of IFTs. There still remains a shortage of studies evaluating follower prototypes across contexts and from a connectionist perspective (Carsten et al., 2010, van Gils et al., 2010; Grant et al., 2011; Shondrick et al., 2010).

The overall findings of this study suggest that IFT's remain fairly stable across time (Epitropaki & Martin, 2004), while allowing support for a connectionist framework to be applied to implicit followership theories. In this study two important contexts, organizational culture and leader change, were altered as a natural consequence of the company's acquisition. As a result of this acquisition, the organization was in a state of flux and employees experienced culture change and leadership change, measured as difference scores, from time point one to two, and two to three and by a single item question about boss change. It is important to note that though the purpose of this study was to examine contextual constraints, at the third level of a connectionist model of schema activation, there remain questions unanswered. Given that the connectionist theory posits that networks can be influenced from the bottom up (level 1 behaviors) as well as from the top down (level 3 context), future research should investigate both behavioral and contextual factors simultaneously. This would allow an interpretation at the trait level, such as Sy et al. (2010). Nevertheless, the shift in hierarchy (boss change), specifically at time point two, resulted in significant effects on the employee's reported follower networks.

Limitations.

As is the case with all research there were certain limitations attached to the methodology, sample and analysis of this data. Individuals were actual employees within an organization allowing for experience to guide their answers to each survey: the follower trait word pairs and the organizational culture scale. There is, however, always a lack of control when moving a study outside a sterile, context-free experimental setting, to the “real” world setting of an office building. Not only are study researchers unable to limit completion time on the survey answers, but also are unable to limit distractions during survey completion.

Another limitation was with the participant sample. Participation by the organization individuals was on a volunteer basis only, permitting researchers to rely solely on the good nature of employees. Sample size was limited as a result. A second sample limitation was the lack of information garnered about employees who didn't complete and return surveys. To be more sound, age, race and employment length data of these employees should be compared to participants.

A few limitations came from the analysis of the data. A repeated measures analysis of variance was completed to analyze change in IFT networks across the three times points. Regression was used to analyze the impact of the culture moderator and the leader change moderator. This is a simple and restrictive method of analysis of longitudinal data. In this study then, the assumption was made, that participants correspondence/similarity scores deviate at time one, but then are consistent across time points (constant variances). It is likely that this overestimates the participants' similarity in their rate of change, over time. Though repeated measures analysis of variance allows for proper analysis of non-randomized samples, where ANCOVA does not, generalization outside the sample is not assumed. This is important to note;

this company experienced a very specific situation, (acquisition), and participants experienced change specific to a takeover. These fluxes in organizations are not a day to day experience of most employees, and generalization outside this sample should not be assumed. Culture change was measured as a mean difference score between measurement time points on the OCS. There are issues surrounding the use of mean difference scores as well, main being the loss in information.

Implications and future research.

Little is known about implicit followership theories and there has been a surge in researchers calling for a more thorough understanding of followers. This is an early examination of follower prototypes as dynamic structures. There is still much to be discovered about the dynamic nature of implicit followership theories. Applying a connectionist model of implicit theory activation to study followership and using it as a guide allows researchers to understand the role of context in prototype activation. This study followed a single company over the course of six months to explore the impact of organizational acquisition on network activation within follower prototypes. Though no significant changes were uncovered in IFT's across the three time points, this is not to say that IFT's don't change (Sy et al. 2010).

It is my belief that gaining a better understanding of the dynamic nature of implicit followership theories may allow for future application to workplace settings by providing organizations with a better understanding of employee expectations of themselves, specifically in transitional and high flux times. In addition, most if not all current approaches to studying followership and implicit theories are dispositional. Dinh and Lord (2012) call for a more process-oriented examination of emergent leadership properties, such as perceptions of leadership. Specific attention paid to event-level examination of leadership and followership

allows researchers to examine the effects of follower or leader identity, affect and goal orientation on perceptions of leadership. Specific slices of information about the event impact evaluations of followership and leadership. Another suggestion made by Dinh and Lord (2012) is to focus not on aggregate prototypes, averaging across content and time, but rather examine implicit theories in context specific situations. When leadership is surveyed and aggregated over time, information is lost. A measure that asks a person to aggregate their perceptions of their leader to the week, month or year, loses the moment to moment information. Researchers should continue to examine implicit theories, in the field, where context can be or is manipulated, to develop a greater understanding of followership perceptions. Applying this to followership, future research may center on more process-oriented examinations of followership perceptions and allow for a more thorough understanding of how behaviors and contexts impact prototypes.

Connectionist models of network activation are well suited to approaches fixed in cognitive procedures: electric encephalograms, functional magnetic resonance imagery, etc. Though a foray into such expensive and modern techniques is unlikely to occur, in social-cognitive psychology, in the immediate future, a study of implicit theories by way of a measure of priming in a lexical decision task may be forthcoming in the near future. It may be possible to apply cognitive reaction time tasks to studies of implicit followership theories. Parts of the prototype can be primed with a simply sentence (“Your boss stole from the office supplies”). Reaction time to the trait manipulative can then be measured and compared to other traits within the prototype to determine if the prototype is altered, in the moment. Exploring connectionism and the dynamic nature of implicit followership theories on a moment to moment basis, in an unconscious process-oriented study, could provide insight as to how dynamic implicit theories truly are.

Carsten et al. (2010) conducted a qualitative analysis of followership. They then went on to suggest studying the role of context in prototype development. The current study was a quantitative analysis of employee's follower prototypes, but it may be beneficial to analyze follower prototypes qualitatively, across contexts, in different types of organizations (sports, business, and religious) as well as different contexts within a single work environment (length of employment, market, hierarchical structure). Qualitative analyses can be very informative and provide a good base for furthering research as well as have use in an applied work setting.

Though little is known, still, about IFT's, researchers suggest that leadership and the follower's relationship with the leader may influence followership prototypes (Sy, 2010; Carsten et al., 2010). Sy (2010) suggests relationship quality, trust, liking of leaders job satisfaction are associated with a leader's follower prototype and anti-prototype. If this is so, then the implications of understanding an employee's follower prototype extend beyond research, to individual, team and organizational level performance and communication outcomes.

Conclusion.

Given the specific nature of this study, conclusions drawn are limited to the sample. The purpose of this study was to explore the dynamic nature of implicit followership theories, using a framework based on connectionist model of network activation. Results suggested that given reported change in boss, implicit followership theories do change. It is certainly true that more research is necessary to clarify the dynamic structure of perceptions of followership. Further, organizational culture is a context as well as leadership, in conjunction with followership deserving more study and both may be potent contexts in altering the weighted connections in follower prototypes.

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Table 1

Intercorrelations of Overall Culture Scores and Subscale Culture Scores

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Culture time 1	66.41	12.39	<i>0.93</i>														
2. Culture time 2	70.56	14.59	0.43**	<i>0.92</i>													
3. Culture time 3	68.72	11.92	0.65**	0.28	<i>0.93</i>												
4. Morale time 1	17.56	3.22	0.83**	0.41**	0.64**	<i>0.89</i>											
5. Morale time 2	17.79	3.63	0.28	0.84**	0.24	0.41**	<i>0.84</i>										
6. Morale time 3	17.69	3.48	0.61**	0.22	0.81**	0.77**	0.27	<i>0.85</i>									
7. Information flow time 1	12.67	3.01	0.74**	0.28	0.31	0.51**	0.05	0.28	<i>0.89</i>								
8. Information flow time 2	13.33	3.79	0.26	0.78**	0.06	0.09	0.55**	-0.09	0.47**	<i>0.70</i>							
9. Information flow time 3	12.79	2.64	0.39*	-0.01	0.60**	0.33*	-0.09	0.53**	0.50**	0.12	<i>0.76</i>						
10. Influence time 1	12.85	3.78	0.86**	0.28	0.57**	0.70**	0.12	0.48**	0.61**	0.11	0.28	<i>0.88</i>					
11. Influence time 2	13.89	3.89	0.42**	0.85**	0.27	0.37*	0.75**	0.17	0.22	0.59**	-0.09	0.52**	<i>0.84</i>				
12. Influence time 3	13.38	3.13	0.42**	0.19	0.71**	0.52**	0.19	0.68**	0.02	-0.06	0.51**	0.52**	0.32*	<i>0.89</i>			
13. Supervision time 1	22.89	4.79	0.82**	0.43**	0.64**	0.60**	0.26	0.49**	0.48**	0.21	0.25	0.59**	0.31	0.34*	<i>0.87</i>		
14. Supervision time 2	25.13	5.57	0.35*	0.83**	0.26	0.34*	0.70**	0.22	0.16	0.57**	-0.04	0.19	0.68**	0.17	0.47**	<i>0.82</i>	
15. Supervision time 3	23.62	4.69	0.56**	0.40*	0.73**	0.51**	0.36*	0.59**	0.18	0.17	0.39*	0.36*	0.28	0.57**	0.76**	0.40*	<i>0.80</i>

Note: Figures in italics and on the main diagonal are reliability coefficients. *p < .05, ** p < .001.

Table 2

Zero-order Correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Sim indiv with norm time 1	0.39	0.1	~									
2. Sim indiv with norm time 2	0.39	0.12	0.75**	~								
3. Sim indiv with norm time 3	0.37	0.13	0.34*	0.44**	~							
4. Indv sim time 1 to 2	0.81	0.3	0.1	0.29	0.31	~						
5. Indv sim time 2 to 3	0.68	0.35	0.3	0.52**	0.49**	0.03	~					
6. Culture change time 1 to 2	7.69	13.03	0.18	0.1	-0.22	0.13	-0.36*	~				
7. Culture change time 2 to 3	10.56	12.05	-0.12	-0.28	-0.29	0.04	-0.56**	0.72**	~			
8. Gender	0.38	0.49	0.08	0.14	0.25	-0.3	0.27	-0.22	-0.25	~		
9. Boss change time 2	0.72	0.46	0.17	0.48**	0.01	0.09	0.30*	0.33*	0.06	0.26	~	
10. Boss change time 3	0.23	0.43	-0.14	-0.13	-0.41*	0.18	-0.44**	0.57**	0.45**	-0.18	0.34*	~

Note: * $p < .05$, ** $p < .001$. Change scores computed by subtracting time one culture scores from time two and two from three, then the absolute value was taken of those differences. Boss change was coded 1 for change and 0 for no change.

Table 3

Repeated measures analysis of within-subjects effects of time on participant follower trait network similarity with normative network

Source	df	F	p
	Within subjects		
Similarity across time	2 (1.55)	1.07	.35 (.34)
Error	76 (58.70)	0.007* (.009)	

Note: Value followed by * represents the mean square error. Values enclosed in parentheses represent Greenhouse-Geisser Correction.

Table 4

Regression analysis of effect of culture change from time point one to two on participant follower trait network similarity with normative network at time two

Source	Sum of Squares	df	Mean Square	F	p
Regression	.006	1	.006	.407	.53
Residual	.523	37	.014		
Total	.529	38			

Table 5

Regression analysis of effect of culture from time point two to three on participant follower trait network similarity with normative network at time three

Source	Sum of Squares	df	Mean Square	F	p
Regression	.054	1	.054	3.39	.07
Residual	.586	37	.016		
Total	.640	38			

Table 6

Exploratory regression analysis of effect of culture from time point one to two on participant follower trait network similarity from time point one to two

Source	Sum of Squares	df	Mean Square	F	p
Regression	0.06	1	.057	.614	.44
Residual	3.42	37	.092		
Total	3.48	38			

Table 7

Exploratory regression analysis of effect of culture from time point two to three on participant follower trait network similarity from time point two to three

Source	Sum of Squares	df	Mean Square	F	p
Regression	1.48	1	1.48	16.61	.00
Residual	3.29	37	.089		
Total	4.77	38			

Table 8

Regression analysis of effect of boss change at time two on participant follower trait network similarity with normative network at time two

Source	Sum of Squares	df	Mean Square	F	p
Regression	.121	1	.121	10.94	.002
Residual	.408	37	.011		
Total	.529	38			

Table 9

Regression analysis of effect of boss change at time three on participant follower trait network similarity with normative network at time three

Source	Sum of Squares	df	Mean Square	F	p
Regression	.107	1	.107	7.42	.01
Residual	.533	37	.014		
Total	.640	38			

Table 10

Exploratory regression analysis of effect of boss change at time point 2 on participant follower trait network similarity from time point one to two

Source	Sum of Squares	df	Mean Square	F	p
Regression	.030	1	.030	.327	.57
Residual	3.44	37	.093		
Total	3.48	38			

Table 11

Exploratory regression analysis of effect of boss change from time three on participant follower trait network similarity from time point two to three

Source	Sum of Squares	df	Mean Square	F	p
Regression	.904	1	.904	8.65	.006
Residual	3.87	37	.105		
Total	4.77	38			

Figure 1.

Normative follower trait network at time one

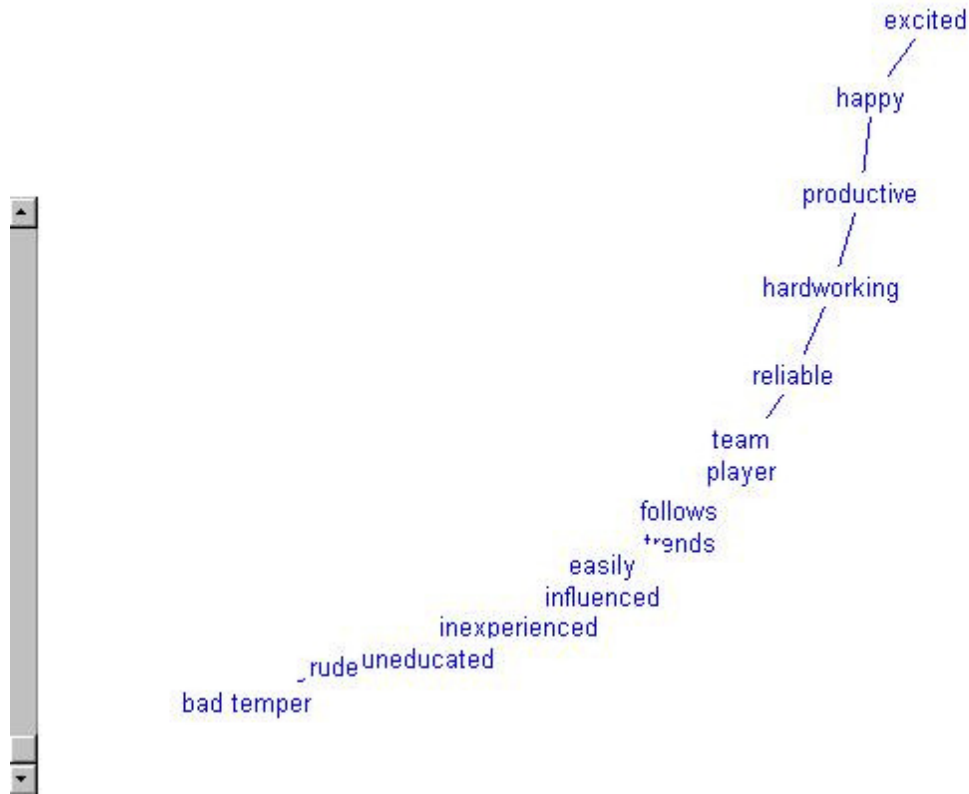


Figure 2.

Normative follower trait network at time two

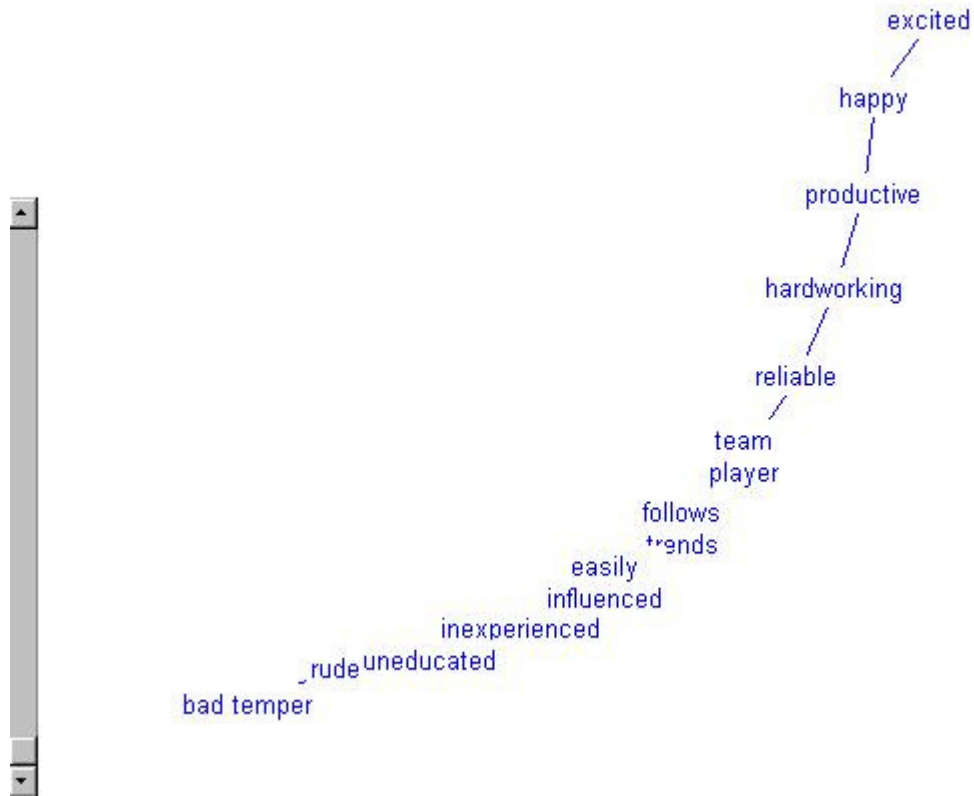


Figure 3.

Normative follower trait network at time three

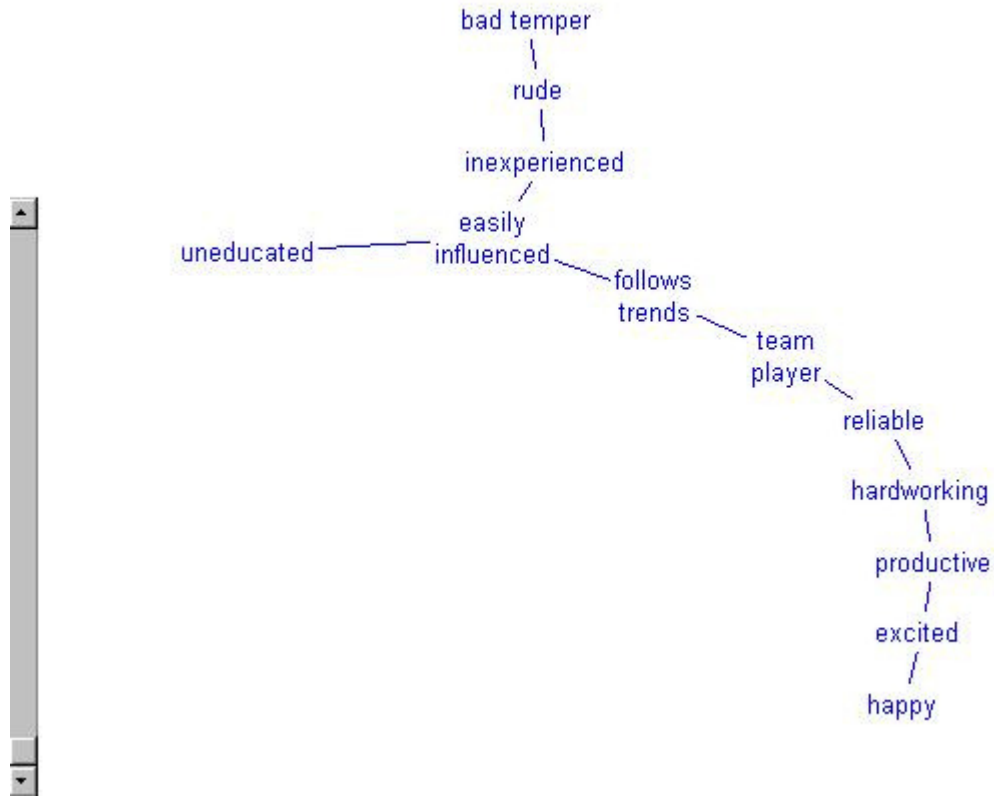


Figure 4.

Example follower trait network

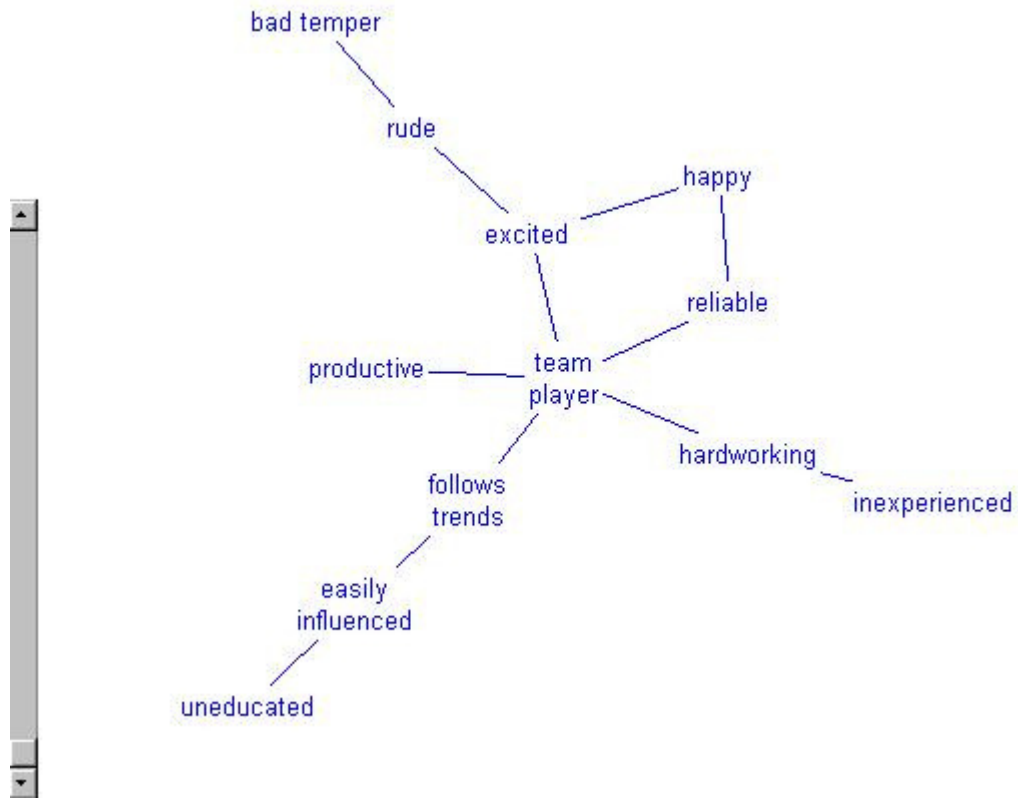
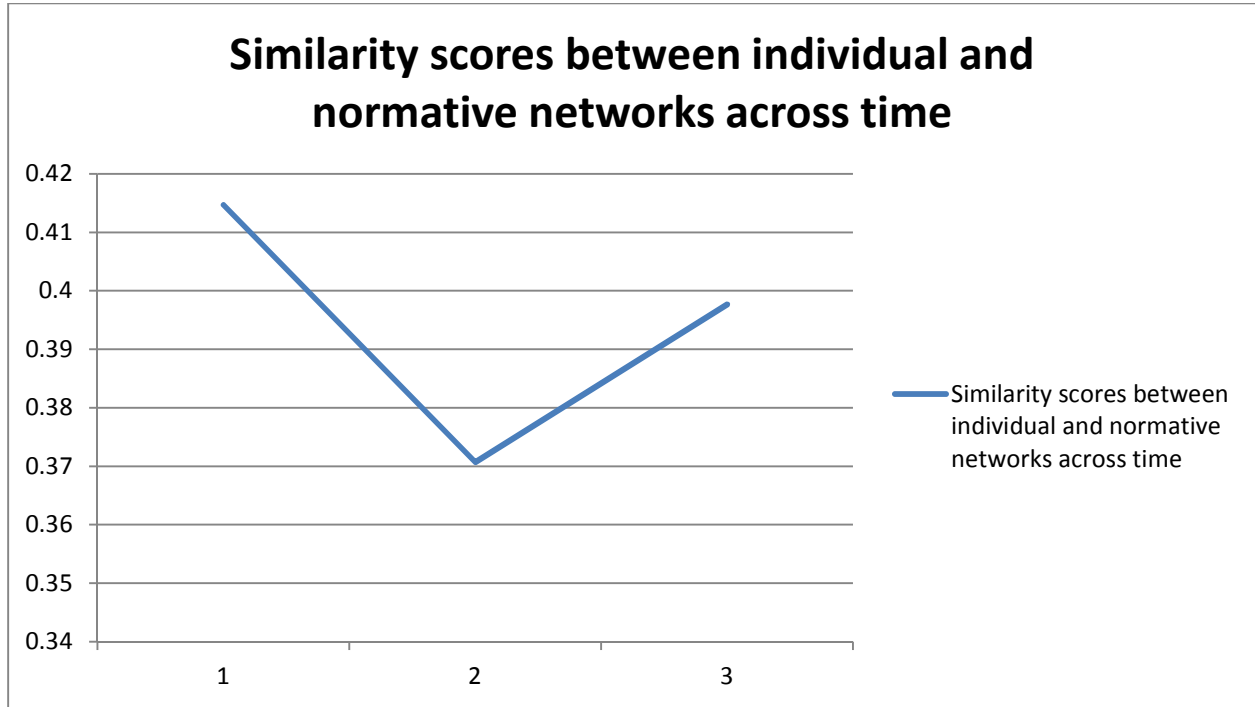


Figure 5.

Within-subject repeated measure average similarity values between participant and normative networks of IFT across time



Appendix A.

IFT Measure
From Thomas Sy (2010)

Using a 10 point scale, indicate how characteristic each of the items is for followers (1 = not at all characteristic; 10 = extremely characteristic).

1. Hardworking

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

2. Productive

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

3. Goes above and beyond

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

4. Uneducated

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

5. Slow

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

6. Inexperienced

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

7. Easily influenced

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

8. Follows trends

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

9. Soft spoken

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

10. Excited

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

11. Outgoing

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

12. Happy

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

13. Arrogant

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

14. Rude

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

15. Bad temper

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

16. Loyal

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

17. Reliable

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

18. Team player

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Appendix B.

Example from survey.vt.edu site.

Please rate how related the word pairs are within the context of a follower's behaviors/traits, with 1 being not at all related and 9 being extremely related.

follows trends ----- inexperienced

1-not at all related 2 3 4 5 6 7 8 9-extremely related

List of all word pairs.

Follows trends ----- inexperienced

Follows trends ----- team player

Follows trends ----- rude

Follows trends ----- excited

Follows trends ----- productive

Inexperienced ----- team player

Inexperienced ----- rude

Inexperienced ----- excited

Inexperienced ----- productive

Team player ----- rude

Team player ----- excited

Team player ----- productive

Rude ----- excited

Rude ----- productive

Excited ----- productive

Bad temper ----- productive

Bad temper ----- excited

Bad temper ----- rude

Bad temper ----- team player

Bad temper ----- inexperienced

Bad temper ----- follows trends

Bad temper ----- happy

Bad temper ----- reliable

Bad temper ----- uneducated

Bad temper ----- hardworking

Bad temper ----- easily influenced

Happy ----- productive

Happy ----- excited

Happy ----- rude

Happy ----- team player

Happy ----- inexperienced

Happy ----- follows trends

Happy ----- reliable

Happy ----- uneducated
Happy ----- hardworking
Happy ----- easily influenced
Reliable ----- productive
Reliable ----- excited
Reliable ----- rude
Reliable ----- team player
Reliable ----- inexperienced
Reliable ----- follows trends
Reliable ----- uneducated
Reliable ----- hardworking
Reliable ----- easily influenced
Uneducated ----- productive
Uneducated ----- excited
Uneducated ----- rude
Uneducated ----- team player
Uneducated ----- inexperienced
Uneducated ----- follows trends
Uneducated ----- hardworking
Uneducated ----- easily influenced
Hardworking ----- productive
Hardworking ----- excited
Hardworking ----- rude
Hardworking ----- team player
Hardworking ----- inexperienced
Hardworking ----- follows trends
Hardworking ----- easily influenced
Easily influenced ----- productive
Easily influenced ----- excited
Easily influenced ----- rude
Easily influenced ----- team player
Easily influenced ----- inexperienced
Easily influenced ----- follows trends

Appendix C.

Organizational Culture Survey

1. This organization motivates me to put out my best efforts.
To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5
2. This organization respects its workers.
To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5
3. This organization treats people in a consistent and fair manner.
To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5
4. There is an atmosphere of trust in this organization.
To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5
5. This organization motivates people to be efficient and productive.
To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5
6. I get enough information to understand the big picture here.
To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5
7. When changes are made, the reasons why are made clear.
To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5
8. I know what's happening in work sections outside of my own.
To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5
9. I get the information I need to do my job well.
To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5
10. I have a say in decisions that affect my work.
To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5
11. I am asked to make suggestions about how to do my job better.
To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5

12. This organization values the ideas of workers at every level.

To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5

13. My opinions count in this organization.

To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5

14. Job requirements are made clear by my supervisor.

To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5

15. When I do a good job my supervisor tells me.

To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5

16. My supervisor takes criticism well.

To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5

17. My supervisor delegates responsibility.

To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5

18. My supervisor gives me criticism in a positive manner.

To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5

19. My supervisor is a good listener.

To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5

20. My supervisor tells me how I'm doing.

To a very little extent to a little extent to some extent to a great extent to a very great extent
1-----2-----3-----4-----5

Appendix D.

Demographic Questions

1. What is your sex?
 - a. Male
 - b. Female
2. Please specify your race?
 - a. American Indian or Alaska Native
 - b. Asian
 - c. Black or African American
 - d. Native Hawaiian or Other Pacific Islander
 - e. Hispanic
 - f. White
3. What is your age, in years? _____
4. What is your highest level of education?
 - a. High school diploma or GED
 - b. Two-year professional degree
 - c. Some college
 - d. BA or BS
 - e. Some graduate school
 - f. Masters
 - g. PhD
5. How long have you been employed by this company? (round up in months) _____
6. Approximately how many subordinates do you have? _____
7. To what degree has your job changed, 1 being “not at all” to 7 being “completely”?
1-----2-----3-----4-----5-----6-----7

8. Do you report to the same person now as you did three months ago or since last completing surveys for this research, yes or no? _____

9. If no, then how similar is your boss' leadership style now as it was during the previous three months or since last completing surveys for this research, 1 being "not at all similar" and 7 being "exactly the same"?

1-----2-----3-----4-----5-----6-----7

10. How similar is your job with your current boss to your job with your previous boss, 1 being "not at all similar" and 7 being "exactly the same"?

1-----2-----3-----4-----5-----6-----7

11. Did you just finish a major project, yes or no? _____

12. If yes, to what degree was the project a negative emotional event for you personally, 1 being "not at all" and 7 being "completely"?

1-----2-----3-----4-----5-----6-----7

13. If yes, to what degree was the project a positive emotional event for you personally, 1 being "not at all" and 7 being "completely"?

1-----2-----3-----4-----5-----6-----7

14. To what degree do you identify yourself as a leader, at work, with 1 "not at all, to 7 "completely"?

1-----2-----3-----4-----5-----6-----7

Appendix E.

Please read the following information.

The purpose of this research project is to explore implicit followership theories in organizations. You will be asked to complete a brief set of online surveys accessed through the link in this email. You may choose not to answer any question and may withdrawal from the study at any point. No identifying information from you will be recorded. There are no risks to participation. Should you feel uncomfortable at any time during the survey, you can choose to skip questions or you can stop the survey at any time.

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 Fall 2012.

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 survey results in order to transcribe the data. All information given during this study will remain anonymous.

There is no compensation for participation. Your participation in this study is voluntary; you may discontinue your participation at any time without penalty. You may return an incomplete survey if you choose not to fully complete the study.

By completing the first page of the surveys, accessed through the links, you are granting your consent to participate.

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. You may also contact Dr. Harrison, at dwh@vt.edu or Dr. Moore, at moored@vt.edu.

Regards,

Katie Snead
I/O Psychology
Virginia Tech

Instructions:

Click on the link below.

Please fill in your anonymous subject code found on the first page of the survey.

Sex, day of birth, first two letters of last name (e.g. f05sn)

Please complete all questions then click Done.