Development of trust in leaders: Exploring a cognitive process model

by

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DEVELOPMENT OF TRUST IN LEADERS: EXPLORING A COGNITIVE PROCESS MODEL

Abstract

This thesis explored the cognitive, character-inference process that Dirks & Skarlicki (2004) assert contributes to trust development. Self-reported transformational leadership, leader integrity, organizational justice, and leader prototypicality correlated positively with cognitive trust in this sample of 81 student employees (63% female, mean age 20.5) of a large southeastern university. Leader prototypicality, a cognitive evaluation process, partially mediated the relationship between leader integrity and trust. This study's prime contribution was the longitudinal, empirical test of a model of trust development in interdependent leader-follower dyads. Future research may explore other antecedents of trust, assess how the cognitive process of trust development occurs, or investigate the relationship-based social exchange mechanism Dirks and Skarlicki (2004) suggest contributes to the development of affective trust.

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Introduction

Trust in leaders is an emerging field in leadership research, building on previous work exploring cognitive schema and leader member exchange relationships (Brower, Schoorman, & Tan, 2000; Dirks & Skarlicki, 2004). Trust exists within a variety of interpersonal contexts, including organizations (Rotter, 1967). Leaders play the primary role in establishing and developing trust within an organizational context (Gillespie & Mann, 2004; Whitener, Brodt, Korsgaard, & Werner, 1998). Findings to date suggest that trust in leaders is especially important in teams and organizations facing complex, unstructured tasks that require interdependence, cooperation, and information sharing (Gillespie & Mann, 2004).

Studies of trust in organizations and leaders are increasing rapidly, reflecting the recent focus on interpersonal trust (Costa, 2003; Tzafir, 2005). Research to date has produced a long list of variables that are related to trust, including a wide variety of antecedents that have been theoretically linked to trust. These correlates reflect characteristics of the leader, such as integrity and transformational leadership, characteristics of the follower, such as propensity to trust, organizational context characteristics, such as organizational justice, and relationship characteristics, such as length of the relationship between trustee and trustor (Dirks & Ferrin, 2002; Korsgaard, Whitener, & Brodt, 2002; Mayer, Davis, & Schoorman, 1995; McAllister, 1995; Spector & Jones, 2004; Whitener et al., 1998).

Theoretical models based on current findings use arrows to indicate causality, specifying correlates of trust in leadership as theoretical antecedents and outcomes, but

fail to elucidate the processes that their arrows presumably represent (Dirks & Ferrin, 2001; Dirks & Ferrin, 2002; Whitener, et al., 1998). Despite theoretical efforts, few researchers have explored in any depth the processes by which trust develops (i.e. Dirks & Ferrin, 2002; Dirks & Skarlicki, 2004; McKnight, Cummings, & Chervany, 1998; Whitener et al., 1998).

Researchers such as McKnight et al. (1998) stress the importance of disposition to trust, cognitive processes, and institution-based support in trust development. Dirks and Ferrin's (2002) meta-analysis echoes McKnight et al.'s cognitive perspective, in that it suggests part of the process of trust development is "drawing inferences about the characteristics of a leader" over time. Dirks and Skarlicki (2004) further expand on this idea, suggesting that followers' perceptions of leaders' character determine the cognitive trust present in leader-follower dyads. It may be likely then, that the cognitive processes that underlie trust development involve evaluations of leader prototypicality, with followers comparing their perceptions of the actual leader to the cognitive schema describing their ideal leader.

This thesis builds on Dirks and Skarlicki's (2004) idea of trust as a cognitive process based on inferences about leader character. Three antecedents, transformational leadership, leader integrity, and organizational justice, likely affect cognitive trust through followers' inferences about the prototyicality of their leader. The evaluation of leader prototypicality is the cognitive process linking cognitive trust and its antecedents, which enables this study to explore the cognitive process Dirks and Skarlicki (2004) suggest.

Literature Review

Defining Trust

Trust is an interpersonal phenomenon based on relationships between an individual and another person or group of persons. To date, trust in individuals, groups, leaders, and organizations have been examined by researchers (Dirks & Ferrin, 2002; Shamir & Lapidot, 2003). Trust is a construct that is also defined in diverse ways. Scholars have described trust as an attitude, a belief, a cognitive process, a psychological state, a perception, and a set of behaviors.

Trust can be conceptualized as an attitude. Attitudes are the general evaluations people hold of themselves, others, and objects based on the affects, behaviors, and cognitions held by an individual (Petty, 1995). Whitener et al. (1998) describe trust as an attitude held by an individual trusting party ("trustor") towards a trusted party ("trustee"). From this perspective, trust is based on the trustor's perceptions, attributions, and beliefs about the trustee. McAllister (1995) echoes the conceptualization of trust as an attitude, explaining that trust has both cognitive and affective bases.

Many depictions of trust that do not specifically define trust as an attitude discuss it as an affective, belief-based, or cognitive construct. Since, by definition, attitudes are made up of affects, beliefs, and cognitions, it can be argued that these definitions of trust indirectly support the conceptualization of trust as an attitude. For example, Cummings and Bromiley (1996) define trust as the belief that another individual or group will make good faith efforts to meet explicit or implicit commitments, be honest in negotiations, and avoid taking excessive advantage of another. Similarly, Dirks (2000) portrays trust as a belief that one can rely on another's actions, words, and good intentions towards oneself,

operationalized as the extent to which an individual is willing to make him or herself vulnerable to others.

McAllister's (1995) description of the affect-based component of trust specifies that trust develops out of the trustor's beliefs about and attributions of the trustee's motives. Those who believe that their partners are performing personally chosen behaviors, meeting legitimate needs, and demonstrating care and concern for others are more likely to develop affect-based trust. Affective bases for trust consist of emotional bonds between the trustee and trustor, which influence levels of interdependence and willingness to be vulnerable. McAllister (1995) also suggests that some level of cognitive based trust, resulting from exchanges between the trustee and trustor, is necessary for affect based trust to develop.

Another facet of an attitude is cognition. Supporting the premise that trust is an attitude, trust has been defined as a cognitive construct. Mayer and Davis (1999) describe trust as developing from the cognitive evaluation of the outcomes of previous vulnerability. McKnight et al. (1998) discuss a knowledge-based approach to trust, emphasizing the development of trust over time through experiences with the trustee. Others have described trust as a function of the trustor's observations and learning from the trustee's behavior (Serva, Fuller, & Mayer, 2005; Whitener et al., 1998). Within McAllister's (1995) depiction of trust, the cognitive basis of trust encompasses choices made about who can be trusted under what circumstance, based on the trustee's previous experience, perception of the leader's character, and other "good reasons" (Dirks & Skarlicki, 2004, p. 25).

It is widely accepted that trust impacts trustee behavior. Risk-taking, a behavior, is a central component of some conceptualizations of trust (i.e. Mayer et al. 1995; Serva et al., 2005). Costa (2003) provides a list of other behaviors indicative of trust, including acting in a spirit of cooperation, refraining from controlling or monitoring others, open communication, acceptance of influence, forbearance from opportunism, lack of monitoring, and granting latitude to others over actions that will have impact on ourselves.

Theorists suggest that trust is situational and context dependent. Whitener et al. (1998) specify that it exists within the relationship between a trustor and trustee. Complementing this view, the sociological perspective describes trust as a characteristic of the social fabric that facilitates interactions between parties (Mayer & Davis, 1999). Others go so far as to describe trust as the "foundation for social order" (Lewicki, McAllister, & Bies, 1998, p. 438).

While trust has been defined in a variety of ways, there are two universal themes within existing definitions. First, trust is considered an interpersonal phenomenon, occurring between two parties, the "trustor" and "trustee." Second, trust is relevant in situations where one party is vulnerable to or dependent on another (Dirks, 2000; Mayer et al., 1995; Whitener et al., 1998). Each of the approaches to defining trust outlined above encompasses these specific components.

Trust has been linked with cooperation and predictability in literature; however, these constructs do not describe the same phenomenon as trust. Cooperation is a component of trust, but trust is not necessary for cooperation to occur (Costa, 2003). By definition, trust requires an individual to be vulnerable, whereas cooperation does not

(Mayer et al., 1995). Trust and predictability, while conceptually distinct, are related as both reduce uncertainty within relationships (Mayer et al., 1995). Again, vulnerability is the key distinction with trust extending beyond the construct of predictability. Predictability does not require vulnerability – knowing how someone is likely to behave is not equivalent to trusting that person. For example, one may have a colleague who consistently acts in his own self-interest. Since his behavior is consistent, it is predictable, yet it does not inspire coworkers to make themselves vulnerable to him (Mayer et al., 1995).

Lewicki et al. (1998), Omodei & McLennan (2000), and Saunders and Thornhill (2004) distinguish between trust and distrust, in a departure from traditional approaches, as conceptually distinct, linked dimensions that may coexist within an individual. In contrast to trust, which is associated with positive expectations, distrust is defined as confident negative expectations regarding another's conduct. Lewicki et al. (1998) and Omodei and McLennan's (2000) rejection of trust/distrust as a bipolar construct is suggestive, recognizing the complexity of the contextual and relationships factors that contribute to trust and mistrust.

For the purposes of this thesis, trust is defined as "the extent to which a person is confident in and willing to act on the basis of the words, actions, and decisions of another" (McAllister, 1995, p. 25). McAllister's (1995) discussion of trust that led to this definition emphasized trust as cognition and affect-based, reinforcing the conceptualization of trust as an attitude.

Trust in Leadership

Interpersonal trust is vital in any interaction involving two or more persons. Early research in the field emphasized the importance of trust, arguing that the efficiency, adjustment, and survival of all social groups depend on the presence or absence of trust (Rotter, 1967). More recent work continues to promote trust as a crucial component of social functioning, describing it as the "hallmark of effective relationships" (Dirks, 1999, p. 445). In an organizational context, the recent shift towards flatter, team-based models has decreased leaders' ability to monitor and dictate to their employees, increasing leader's dependence on their ability to gain subordinates' trust (Shamir & Lapidot, 2003). Additionally, increasing diversity and participative management styles in today's workforce make trust more relevant, as workers become less similar to one another and more empowered (Mayer et al., 1995).

Trust is critical to the effective functioning of groups or teams in organizations (Costa, 2003, Dirks, 2000; Jones & George, 1998; Kiffin-Peterson & Cordery, 2003). As industry shifts away from centralized power structures towards self-managed work teams, the relevance of trust in groups, particularly self-directed teams, will continue to increase (Ferrin, Dirks, & Shah, 2006; Mayer, et al., 1995). Research on trust in teams suggests that trust increases the ability of group members to function together, with higher levels of trust resulting in better team performance, high team satisfaction, high attitudinal commitment, and low continuance commitment (Costa, 2003; Dirks, 2000). Dirks' (1999) findings suggest that trust within groups influences performance via motivation.

While interpersonal trust and trust in groups affect organizational function, it can be argued that trust in leadership has the greatest effect on a wide array of desirable organizational outcomes. A leader typically has formal power over her followers and

organizational functions, causing others to be vulnerable to her (Dirks, 2000). Research suggests that leaders play the primary role of establishing and developing trust in teams and organizations (Gillespie & Mann, 2004; Whitener et al., 1998). Trust in leaders is especially relevant for teams and organizations facing complex, unstructured tasks that require interdependence, cooperation, and information sharing (Gillespie & Mann, 2004). Trust in leadership, also conceptualized as "trust in management," has been associated with positive organizational outcomes, including intention to turnover, job satisfaction, satisfaction with participation in decision making, overall performance, and organizational commitment (Dirks & Skarlicki, 2004; Kiffin-Peterson & Cordery, 2003).

The definition of trust used in this thesis is drawn from McAllister's (1995) exploration of trust in an organizational context. Participants in McAllister's scale and theory development work rated their trust in peers and in leaders using the same scale items. This common operationalization of trust suggests that trust in leadership is conceptually equivalent to interpersonal trust. Other studies of trust in leaders have also embraced interpersonal trust definitions to capture trust in leadership (i.e. Korsgaard et al., 2002; Mayer & Davis, 1999).

Theorists have specified that, for trust to occur, the trustee must be specific and identifiable (Mayer & Davis, 1999). While early trust researchers dealt largely with trust in individuals, recent research on trust in leadership included multiple levels of analysis. Trust in leadership has been conceptualized and measured at a several levels, including trust in individual leaders, groups, organizational leadership as a whole, or institutions (Dirks & Ferrin, 2002; Dirks & Skarlicki, 2004; Tzafir, 2005; Shamir & Lapidot, 2003).

Prior research on trust in leaders has focused on correlates of trust in individual leaders (see Table 1). Over 90% of studies to date examine the main effects of trust, compiling a long list of correlates that are theoretically split into antecedents and outcomes (Dirks & Ferrin, 2001). Researchers have also considered trust in work teams, finding correlates similar to those found in the trust in leadership literature (Costa, 2003; Dirks, 2000). Theorists have split these correlates of trust into antecedents and outcomes, though these causal relationships have not been tested.

Antecedents of trust compiled to date can be categorized as characteristics of the leader, characteristics of the follower, relationship characteristics, and organizational context characteristics. Leader characteristics thought to influence trust include managerial trustworthy behavior, leader consistency, honesty, integrity, competence, ability, communication, demonstration of concern, benevolence, professional credentials, and transactional and transformational leadership style. Trustor characteristics that contribute to trust development include trustor expectations, perceived similarity of followers to their leaders, follower propensity to trust, self-efficacy, and values. Relationship characteristic antecedents of trust include leader-member exchange (LMX), leader-follower initial interactions, the length of the relationship between trustee and trustor, costs of exchanges, and value congruence between leader and follower. Organizational characteristics that impact trust include organizational structure, human resource policies and procedures, organizational culture, perceived organizational support, and interactional, procedural, and distributive justice (Dirks & Ferrin, 2002; Korsgaard et al, 2002; Mayer et al., 1995; McAllister, 1995; Spector & Jones, 2004; Whitener et al., 1998).

A variety of positive organizational outcomes result from trust in leadership (Dirks & Skarlicki, 2004). Trust in leadership is linked to increased support for and higher commitment to authorities, increased goal commitment, a willingness by followers to behave in ways that benefit the organization, organizational citizenship behavior, voluntary acceptance of authorities' decisions, higher levels of job satisfaction, decreased intention to turnover, and improved performance (Dirks, 2000; Dirks & Ferrin, 1998; McAllister, 1995; Shamir & Lapidot, 2003; Whitener et al., 1998). Research in team contexts suggests that trust in leadership also affects team effectiveness and performance (Dirks, 2000).

The Process of Trust Development

The process by which followers develop trust in a leader is not well understood. Howell and Hall-Merenda (1999) suggest that high-quality LMX relationships are "defined by mutual trust" and more likely to be found in contexts with transformational leaders (p. 682). One perspective suggests that trust occurs in a leader-member exchange context, developing through social exchanges over time (Brower et al., 2000; Graen & Uhl-Bien, 1995; Liden, Wayne, & Stilwell, 1993; Whitener et al., 1998). Other theoretical models of trust development have been hypothesized, including McKnight et al. (1998), Dirks & Ferrin (2002), Whitener et al. (1998), Mayer & Davis (1999), and Simons (2002); however, few empirical tests of these models have been undertaken.

McKnight et al. (1998) used a cognitive perspective to consider trust development in new organizational relationships. Their model incorporates three categories of antecedents: disposition to trust, cognitive processes, and institution-based support. Disposition to trust is hypothesized to impact trust directly and through institution-based

trust. Institution-based support is causally linked to trust. The one process component of the model, labeled "cognitive processes," includes both illusions of control processes and categorization processes that contribute to the development of cognition-based trust (McAllister, 1995).

Like McKnight et al. (1998), Dirks & Ferrin (2002) consider trust development a cognitive process. Their (2002) meta-analysis is primarily concerned with quantitatively summarizing the relationships between trust in leadership and 23 distinct constructs; however, they briefly discuss the theoretical process of developing trust in a leader or organization. From their perspective, trust development has both cognitive and affective processes that consist of "drawing inferences about the basis of relationship" and "drawing inferences about character of leader" (p. 613). The authors note that these concepts were not examined empirically in the meta-analysis or any of the studies from which they drew data, as there was insufficient data for that purpose.

Building on the idea that relationship and leader character inferences affect different facets of trust, Dirks & Skarlicki (2004) posit that trust development occurs through two mechanisms, one relationship-based and the other character-based. From the relationship-based perspective, affective trust is based on the follower's perception of his/her relationship with the leader. As in social-exchange models, high levels of relationship-based (affective) trust are produced by high-quality exchange relationships in which the follower perceives care and concern from his supervisor. Character-based trust, which the authors specifically note corresponds to cognitive trust, instead focuses on the followers' perception of leaders' character. From this perspective, followers' cognitive trust is based on inferences about qualities, such as integrity, fairness, and

transformational leadership, which are likely to impact the leader's work behavior (Dirks & Skarlicki, 2004).

Whitener et al. (1998) incorporates a causal link from managerial trustworthy behavior, consistent with Costa's (2003) conceptualization of trust as a set of behaviors, to employee perceptions, and from perceptions to trust. From this perspective, a variety of organizational, relational, and individual factors such as organizational culture, cost of exchanges, propensity to trust, and values contribute to trust via managerial trustworthy behaviors. Behavioral integrity, demonstration of care and concern, behavioral consistency, sharing and delegation of control, and communication make up managerial trustworthy behavior.

Similar to Whitener et al. (1998), Mayer and Davis' (1999) model focuses on followers' perceptions of leader ability, integrity, and benevolence leading to trust. Their work found that the relationship between performance appraisal variables and trust was fully mediated by perceived ability, integrity, and benevolence in a 14 month study on employee trust in top management. An alternative process is described in Simons' (2000) model, which suggests antecedents to trust, including leader integrity, impact trust through perceived leader reliability and perceived value congruence.

Current models of trust in leadership are suggestive; however, few have been systematically tested or offer explanations of the processes linking antecedents with trust. Studies of trust development to date have been limited by cross-sectional research designs and use of relationships that are either so new as to cause questions over whether trust could have developed in that time period (i.e. Dirks, 1999 measured trust after one experimental session completing a tower building task) or so well established that trust is

likely stable and unchanging (i.e. Korsgaard et al., 2002 surveyed employees with an average of five years tenure at the organization). Mayer and Davis (1999) and Dirks & Skarlicki (2004) have suggested that the next step will be longitudinal research on the development of trust. Dirks' (2000) exploration of trust, leadership, and team performance in NCAA basketball teams using data collected at three points in the season provides a blueprint for future research in this domain.

The model of trust development described in this thesis draws from many of the models discussed above. By integrating organizational justice (Colquitt, 2001), leader integrity (Whitener et al., 1998), and transformational leadership (Bass, Avolio, Jung, & Berson, 2003; Avolio, Bass, & Jung, 1999), and examining trust over time, this study will explore the processes linking trust with its antecedents. This model is designed to test Dirks and colleagues' (2002; 2004) hypothesized processes of cognitive character-based trust development by examining whether antecedents affect trust via the cognitive evaluation of leader prototypicality.

Antecedents of Interest

Transformational leadership. Transformational leaders are those who develop, intellectually stimulate, and inspire their followers to transcend self-interest and work towards a collective purpose or vision (Bass, 1985 in Howell & Avolio, 1993). Followers are likely to feel confident in the extent to which they are willing to act on the basis of a transformational leader's words, actions, and decisions, increasing their trust in the leader (McAllister, 1995). Transformational leaders motivate their followers to exceed performance expectations. It has been postulated that increased motivation results from

follower's trust and respect in their leader, which encourages them to embrace their

leader's goals and vision (Gillespie & Mann, 2004).

Transformational leadership theory and trust have been closely linked, with trust

described as an important component of the relationships between transformational

leaders and their followers (Connell, Ferres, & Travaglione, 2003; Dirks & Ferrin, 2002;

Dirks & Skarlicki, 2004). Transformational leadership is a significant predictor of trust,

correlating 0.71 (Connell, et al., 2003). Recent research suggests that transformational

leadership behaviors are an important antecedent of trust, explaining 27% of the variance

in employees' trust in their leader (Gillespie & Mann, 2004; Podsakoff, McKenzie, &

Bommer, 1996). Butler, Cantrell, and Flick (1999) demonstrated that trust in a supervisor

correlated between 0.42 and 0.91 with six facets of transformational leadership:

articulating a vision, providing a model, fostering acceptance of group goals, high

performance expectations, individualized support, and intellectual stimulation. The strong

correlation between trust in leaders and transformational leadership has led to its

inclusion as an antecedent of trust in Dirks and Ferrin's recent (2002) meta-analysis of

trust in leadership.

Leader integrity. Integrity is an important component of both leadership and trust

(Craig & Gustafson, 1998; Mayer et al., 1995). Integrity is particularly relevant for

cognitive trust. Dirks and Skarlicki (2004) suggest that cognitive trust is based in large

part on the perceived integrity of the trustee. Mayer and colleagues (1995; 1999) propose

that trust is based on three trustworthiness factors: ability (competence), benevolence,

and integrity. Whitener et al.'s (1998) discussion of trust initiation reiterates the

importance of leader ability, labeled "perceived competence," and leader benevolence,

titled "demonstration of concern" (Whitener et al., 1998). Trust itself is conceptually

distinct from Mayer et al.'s (1995; 1999) factors of trustworthiness; however, perceived

leader ability, benevolence, and integrity each contribute to trust development. Findings

to date indicate a significant link between followers' perceptions of leaders' integrity and

reported trust in leaders (Craig & Gustafson, 1998).

Leader integrity is defined as a trustor's perception that the trustee adheres to a set

of principals that they find acceptable, or simply the perceived pattern of alignment

between an actor's words and deeds (Mayer et al., 1999; Simons, 2002). Experiences that

educate the trustee about the consistency of the trustee's past behaviors, belief that the

trustee has a strong sense of justice, communication about the trustee by others, and the

extent to which the trustee's actions and words are congruent all contribute to the

development of cognition-based or knowledge-based trust (Mayer et al., 1999; McKnight

et al., 1998). Followers' observations of leaders behaving ethically impact follower

cognitions and behavior (Morgan, 1993). Through this cognitive process, when followers

see their leaders behaving ethically, they are more likely to trust them.

Overall, research findings support the link between integrity and trust. Craig and

Gustafson (1998) discovered that integrity in dealing with others accounted for 63% of

the variance in reported trust level. In Mayer and Davis's (1999) field study exploring the

effect of improving an appraisal system on trust, the path from integrity to trust had a

value of 0.30, with the relationship between performance appraisal variables and trust

being fully mediated by leader ability, benevolence, and integrity.

Recent models exploring trust include integrity, alternatively labeled "ethical

behavior," "behavioral integrity" and "honesty beliefs," as an important element.

McKnight et al. (1998) portray honesty beliefs as components of trusting beliefs, which contribute to trust. Simons' (2000) model suggests that managers' integrity is a "key antecedent" to trust (p. 32).

Leader integrity and leader reputation are constructs with some overlap, both encompassing other people's perceptions of a leader. Reputation is made up of perceived professional competence, benevolence, honesty, and predictability (McKnight et al., 1998). This is conceptually distinct from integrity, which is defined as a trustor's perception that the trustee adheres to a set of principals that they find acceptable (Mayer et al., 1995). The three components of reputation are very similar to Mayer and colleagues' (1995; 1999) components of trust: ability, benevolence, and integrity, suggesting reputation has more in common with trust than with integrity.

Organizational justice. Fairness, the construct underlying organizational justice, and trust have been closely related in the organizational psychology literature (Colquitt, Scott, Judge, & Shaw, 2006; Dirks & Skarlicki, 2004). Many researchers, including Colquitt and colleagues, Ambrose and Schminke (2003), and Dirks and Ferrin (2002) have noted that organizational justice is a multi-faceted construct that contributes to trust, with different aspects taking precedence under different structural conditions. In their 2002 meta-analysis of trust and its correlates, Dirks and Ferrin conceptualize interactional, distributive, and procedural justice as affecting "leader actions and practices" that in turn influence trust in leaders. Ambrose and Schminke (2003) suggest that justice may impact outcomes via processes such as social exchange.

Building on Greenberg's prior work, Colquitt and colleagues (2001; 2006) describe organizational justice as possessing four factors: distributive, procedural,

interactional, and interpersonal justice. From their perspective, distributive justice

involves the perceived fairness of decision outcomes, i.e. whether rewards are fairly

distributed. Procedural justice concerns the process by which decisions were made, with

accurate, consistent, transparent procedures receiving higher justice scores. In contrast,

interpersonal justice assesses the perceived fairness of how procedures are applied, rather

than outcomes, including a focus on communication style. Finally, informational justice

addresses the perceived honesty and adequacy of information shared (Colquitt et al.,

2006).

Recent work linking trust and organizational justice suggests that the three most

studied facets, distributive, procedural, and interactional justice, have consistent

relationships with trust in supervisors. Dirks and Ferrin's (2002) meta-analysis of fifteen

studies evaluating the relationship between distributive justice and trust found a mean

weighted correlation of 0.5. More recent work yielded correlations of 0.31 (Ambrose &

Schminke, 2003) and 0.29 (Aryee, Budhwar, & Chen, 2002) between distributive justice

and trust in supervisors. Similarly, a 2002 meta-analysis of 30 studies looking at

procedural justice and trust revealed a mean weighted correlation of 0.61 (Dirks & Ferrin,

2002). This value is consistent with the 0.35, 0.28, and 0.24 correlations between

procedural justice and supervisory trust in found by Ambrose and Schminke (2003),

Aryee et al. (2002), and Stinglhamber, DeCremer, and Mercken (2006).

The strongest correlations between trust and justice are found for the facet of

interactional justice. Dirks and Ferrin's (2002) meta-analysis of nine studies revealed that

interactional justice had a mean weighted correlation with trust of 0.65. This value is

congruent with the 0.66, 0.71, and 0.79 correlations between interactional justice and

supervisory trust in recent work by Ambrose and Schminke (2003), Aryee et al. (2002), and Stinglhamber et al. (2006).

Brashear, Manolis, and Brooks (2005) found similar correlations between trust and procedural justice ($r = 0.63$) and distributive justice ($r = 0.41$); however, their model of turnover includes a causal link from trust to justice. This alternative conceptualization of the relationship suggests that, when trust is present in a relationship, justice perceptions will increase. While this model describes the causal nature of this relationship differently, it should be noted that their correlations confirm the existence of the relationship outlined in the previous paragraph.

Cognitive Process Contributing to Trust Development

Implicit leadership theory (prototypicality). Implicit leadership theories (ILTs) reflect the cognitive categories used by individuals to discriminate between leaders and non-leaders (Lord, Foti, & DeVader, 1984, Offerman, Kennedy, & Wirtz, 1994). Individuals possess leader prototypes, which provide a composite of the attributes they consider most representative of leaders. These prototypes are used to process social information and evaluate leaders (Engle & Lord 1997; Lord et al., 1984). When a follower perceives that someone possesses the characteristics associated with her leader prototype, she is more likely to label that person a leader.

ILTs are made up of personal, abstract assumptions about the traits and abilities that characterize an ideal leader (Martin & Epitropaki, 2001). Factor analysis suggests implicit leadership prototypes in the work context have a four-factor structure, encompassing sensitivity, intelligence, dedication, and dynamism. A leader anti-prototype, consisting of tyranny and masculinity, stands in contrast to the leader

prototype (Epitropaki & Martin, 2004; Offerman et al., 1994). Cross-cultural work evaluating culturally endorsed implicit theories of leadership across 62 counties has confirmed that a "universally endorsed outstanding leader" prototype exists, holding constant across cultural boundaries (Den Hartog, House, Hanges, Ruiz-Quintanilla, & Dorfman et al., 1999, p. 237).

McKnight et al. (1998) suggest that categorization processes, such as evaluating a would-be leader against the universal leader prototype, contribute to trust. Reputation categorization and stereotyping are both cognitive processes relevant to ILT prototypicality evaluations. Reputation categorization suggests that individuals with good reputations will be categorized as trustworthy. Benevolence, reputation, honesty, and predictability, traits likely to be associated with leader prototypes, contribute to reputation categorization. During initial meetings, individuals form stereotypes about one another based on visible characteristics such as gender, age, physical appearance, or occupation. Positive stereotyping, which occurs when someone has the characteristics that we associate with leaders, can lead to high levels of trust immediately, by generalizing our trusting feelings for the category into which an individual was cognitively assigned to the person (McKnight et al., 1998). Similarly, individuals evaluated as being consistent with follower's leader prototype are immediately categorized as leaders and considered more trustworthy.

In keeping with the cognitive schema approach to implicit leadership theories, Kenney, Schwartz-Kenney, and Blascovich (1996) state that people identify and categorize leaders based on their similarity to leader prototypes. Specific traits and behaviors are associated with leader categories (Gerstner & Day, 1994). The antecedents

of interest in this study, leader integrity, organizational justice, and transformational leadership, were chosen for their close relationship to the universal leader prototype.

Kenney et al.'s (1996) exploration of exemplar leader characteristics found that "being fair" was the quality most representative of leaders considered worthy of influence. Fairness is associated with organizational justice and leader integrity, suggesting that perceived justice and leader integrity are likely to contribute to trust via the evaluation of a leader's prototypicality. Consistent with Kenney et al's (1996) assertions, Den Hartog et al.'s (1999) GLOBE study of leader prototypes in 62 countries found that integrity was associated with the leadership prototype. Specifically, leaders were universally defined as being trustworthy, just, and honest (Den Hartog et al., 1999).

Integrity is related to transformational leadership, with diverse populations describing transformational and charismatic leaders as more "ethical" and "principled" than their non-transformational counterparts (Craig & Gustafson, 1998). Research has demonstrated that honesty is a diagnostic attribute for the category "leader" in leadership schemas cross-culturally and across diverse leader types; thus, leader integrity is likely to affect trust via the cognitive process of leader prototypicality evaluation (Lord et al., 1984).

Ross and Offerman (1997) found that high scores on transformational leadership were associated with a distinct leader personality pattern that contributes to the evaluation of implicit leadership prototypicality (Craig & Gustafson, 1998). Work by Martin & Epitropaki (2001) confirms the relationship between transformational leadership and leadership prototype, which correlated 0.2 in their sample. Additionally, Den Hartog et al.'s (1999) GLOBE study suggests that attributes associated with transformational

leadership help make up a universal leader prototype. These findings and theoretical

connections suggest that leaders who demonstrate transformational leadership styles are

more likely to be cognitively evaluated as leaders, consistent with the ITL prototype. This

suggests that transformational leadership may impact trust through the mechanism of ITL

prototypicality.

<div align="center">Summary and Hypotheses</div>

Trust is a vital component of interpersonal relationships, including those between

leaders and followers in organizations (Dirks & Ferrin, 2002; Rotter, 1967; Whitener et

al., 1998). Many important organizational outcomes are affected by the trust followers

have for their leaders, including job performance, support for and commitment to

authorities, goal commitment, follower willingness to behave in ways that benefit the

organization, organizational citizenship behavior, job satisfaction, and turnover intentions

(Dirks, 2000; Dirks & Ferrin, 1998; McAllister, 1995; Shamir & Lapidot, 2003; Whitener

et al., 1998).

To date, trust in leadership research has depended on cross-sectional, correlational

research. These methods have amassed a catalog of trust correlates, theoretically split into

antecedents and outcomes. Theoretical antecedents of trust that have consistently

appeared in the research include organizational justice, transformational leadership, and

leader integrity (Dirks & Ferrin, 2002; Whitener et al., 1998).

McKnight et al. (1998) describe trust development as a cognitive process. Dirks

and Ferrin (2002) also subscribe to a cognitive perspective of trust development,

proposing that trust develops through the process of drawing inferences about the basis of

the leader-follower relationship and the leader's character. The evaluation of a leader

against an accepted leader prototype is the cognitive process likely to mediate the

relationship between antecedents and trust within this framework, with followers who

perceive their leader as behaving in ways consistent with their "leader" schema reporting

higher trust.

The purpose of this study is to examine the process by which followers develop

trust in leaders. Integrating leader integrity (Whitener et al., 1998), transformational

leadership (Connell et al., 2003; Dirks & Ferrin, 2002), and organizational justice

(Colquitt, 2001; Dirks & Ferrin, 2002) to examine trust over time enables this study to

explore the processes linking trust with its antecedents. This approach is designed to test

Dirks and Ferrin's (2002) hypothesized processes of trust development, examining how

these antecedents affect cognitive trust via leader prototypicality.

Hypotheses

H1. Transformational leadership will have a direct, positive relationship with

trust.

H2. The relationship between transformational leadership and trust will be

partially mediated by leader prototypicality.

H3. There will be a direct, positive relationship between leader integrity and trust.

H4. The relationship between leader integrity and trust will be partially mediated

by leader prototypicality.

H5. Organizational justice will have direct, positive relationship with trust.

H6. The relationship between organizational justice and trust will be partially

mediated by leader prototypicality.

Methods

Participants

Two hundred and twenty-six Residence Advisors (RAs) and 29 Building

Supervisors from the residence life department of a large, southeastern university were

invited to participate in the present study. This organization, which is responsible for on-

campus housing and associated educational programs at the university, employs 250

student employees in various positions. This sample was appropriate for the current study

because there were formal reporting structures in place, with multiple followers (RAs)

who performed the same job reporting to each leader (Building Supervisor). Since each

of these leader-follower dyads was formed at the same time, when the residence halls

opened for the 2005-2006 school year, it was possible to look at the constructs of interest

in this sample without confronting the potential confound of relationship length.

Twenty-one of the 29 building supervisors (leaders) completed the demographic

measure. Building supervisors ranged in age from 21 to 29, with an average age of 23.56

years, and were 59% female. One hundred and four of the 226 RAs (followers)

completed the Time 1 measures. Of these 104 followers, 84 completed the Time 2

follow-up measures. The final RA sample was 63% female, with an average age of 20.5

years.

Measures

Leader integrity. Leader integrity was measured using two subscales from

Morgan's (1993) Ethics Scale. This scale asks respondents to indicate how often their

leader displays certain ethical behaviors using a 7-point Likert scale (1= Never, 7 =

Always). This study employed the fourteen items that make up the Integrity and Self-

Serving Behavior scales, setting aside the fifteenth item ("My building supervisor is trusted by others") because it directly addresses the criterion construct. Sample items from the Ethics Scale include, "My leader shows honest respect for other people" and "My leader is fair minded, takes a balanced view of people." The published reliability of this scale is 0.93 (Morgan, 1993). The reliability for this sample was 0.95.

Transformational leadership. Transformational leadership was assessed using four subscales of the Multi-factor Leadership Questionnaire (MLQ), form 5X (Bass & Avolio, 1991). The scale's developers assert that transformational leadership can be computed using four MLQ subscales: Idealized Influence [II], Inspirational Motivation [IM /INSP], Intellectual Stimulation [IS], and Individualized Consideration [IC] (Bass, Avolio, Jung, & Berson, 2003; Avolio, Bass, & Jung, 1999). Respondents are asked to judge how frequently their building supervisor has displayed the behavior described, using a five-point Likert scale, ranging from "Frequently if not always" to "Not at all." Sample scale items include "talks to us about his/her most important values and beliefs" and "seeks differing perspectives when solving problems." The average intercorrelation among these scales in Avolio et al's (1999) work was 0.80. The reliability of the multi-faceted transformational leadership scale in this sample was 0.97.

Organizational Justice. Organizational justice was measured using the interpersonal and informational justice subscales of Colquitt's (2001) organizational justice measure. The interpersonal justice subscale consists of four items, including, "To what extent has [your leader] treated you with respect?" and "To what extent has [your leader] refrained from improper remarks or comments?" The informational justice subscale is made up of five items, including, "To what extent has [your leader] been

candid in (his/her) communications with you?" and "To what extent has [your leader] seemed to tailor (his/her) communications to individual's specific needs?" All justice items (available in Appendix A) use a five point Likert scale (1 = to a small extent, 5 = to a large extent). Both the interpersonal and informational justice subscales have published reliabilities greater than 0.9 (Colquitt, 2001). In this sample, the aggregate measure showed a reliability of 0.91.

While Colquitt (2001) recognizes four distinct facets of organizational justice, for the purpose of this study, interactional and interpersonal justice were used to quantify the construct of organizational justice. This decision was made because Building Supervisors do not directly impact their followers' outcomes, making procedural and distributive justice irrelevant. Rather than looking at interactional and interpersonal justice dimensions of organizational justice separately, the decision was made to look at justice as a whole because these two facets are related to one another. In Colquitt's measure validation studies, these two facets correlated above 0.50. In this sample, the interpersonal and interactional justice subscales correlated 0.69.

Implicit leadership theory (prototypicality). Implicit leadership prototypicality was measured using Epitropaki and Martin's (2004) 21 item Implicit Theories of Leadership scale. All scale items are available in Appendix B. This scale encompasses two higher-order factors, Leader Prototype (which includes lower-order factors Sensitivity, Intelligence, Dynamism, and Dedication) and Leader Anti-prototype (made up of lower-order factors Masculinity and Tyranny). Respondents were asked to rate how characteristic each of 21 traits (i.e. "Sincere," "Clever," "Pushy," "Male") was of their supervisor on a nine-point scale (1 = not at all characteristic, 9 = extremely

characteristic). Items that load on the documented Leader Anti-prototype were reverse

scored. The published reliability for this scale is 0.87 (Epitropaki & Martin, 2004). The

reliability of the Implicit Theories of Leadership scale in this study was 0.94.

Cognitive trust. Trust in leaders was assessed using McAllister's (1995) six item

measure of cognitive trust in a specific coworker. This measure asks respondents to

answer six cognition-based trust items on a seven-point Likert scale (1=strongly disagree,

7=strongly agree). Sample items include "this person approaches his/her job with

professionalism and dedication" and "other work associates of mine who must interact

with this individual consider him/her to be trustworthy." The full measure is available in

Appendix C. The reliability from McAllister's (1995) scale development is 0.91 for the

cognition-based trust scale. The reliability for this scale in the current research is 0.86.

Global trust. For the model proposed in this study to be validated, it is necessary

to demonstrate that followers' trust in a leader changes over time. To ensure that this

condition was met in the present research, participants responded to twelve items

assessing global trust at two different times (see Appendix D for the measure). These

questions included five items from Mayer and Davis (1999), one item from Gillespie and

Mann (2004), and six items developed for this study. Sample items from this composite

scale include, "I would be comfortable giving my building supervisor a task or problem

which was critical to me, even if I could not monitor their actions" (Mayer & Davis,

1999), "My building supervisor can be relied on" (developed for this study), and "How

would you rate your overall trust in your building supervisor?" (Gillespie & Mann,

2004). All items were answered on a five point Likert scale. The published reliability for

the five item Mayer and Davis (1999) scale is 0.59. The reliability for the aggregate

twelve item scale in the current research is 0.92.

Management by exception and laissez-faire leadership. Concerns about common

method variance lead to the inclusion of three subscales of the Multi-factor Leadership

Questionnaire (MLQ), form 5X (Bass & Avolio, 1991), which theoretical work suggests

should not positively correlate with the study's variables of interest. The Management By

Exception subscales (Active and Passive) and Laissez-Faire leadership subscales asked

respondents to judge how frequently their building supervisor displayed the behavior

described, using a five-point Likert scale, ranging from "Frequently if not always" to

"Not at all." (Bass, Avolio, Jung, & Berson, 2003; Avolio, Bass, & Jung, 1999). Sample

scale items include "focuses attention on irregularities, mistakes, exceptions, and

deviations from standards," "fails to intervene until problems become serious," and

"diverts his/her attention away from addressing work-related problems." In this sample,

the subscale reliabilities were 0.74 (Management by Exception – Active), 0.86

(Management by Exception - Passive), and 0.76 (Laissez-faire leadership).

Procedure

RAs and Building Supervisors first received an email from the Director of

Residence Life, advising them that their department had approved a research project

studying "professional relationship development" and requesting their cooperation.

Following that notification, participants received an email invitation with links to the

online measures (hosted via a free web-based survey tool) via their university email

accounts. Residence Life employees use these email accounts to communicate with their

employer, so the accounts are checked regularly.

Each participant received the original email linking them to the online measures at the target date. Those who did not complete the survey within three business days received a follow-up, reminder email reiterating the link. A final reminder was sent one week following the first email to participants who did not respond by that time.

At Time 1, five months into the academic year, followers completed a demographic questionnaire (available in Appendix E) and global trust, management by exception and laissez-faire leadership, transformational leadership, organizational justice, and leader integrity measures. At this time, Building Supervisors who directly oversee RAs completed a short demographic measure (available in Appendix F).

Nine weeks later, at Time 2, followers completed the global trust items for the second time and answered the implicit theories of leadership scale and the cognitive trust measure.

Results

A total of 84 participants completed all portions of the study. Outlier analysis identified three participants who fell more than two standard deviations from the mean on respondent age, respondent job tenure, and/or cognitive trust. All final analyses are based on data from the 81 participants who remained after outliers were removed. Means, standard deviations, and variable inter-correlations are reported in Table 2.

Demographic Differences

All hypothesized constructs were individually evaluated using one-way ANOVAs for differences related to demographic characteristics, including respondent age, gender, job tenure, and year in school. No significant demographic differences were found on any construct.

Common Method Variance

Concerns about common method variance are assuaged, in part, by the correlations between negative leader characteristics (Management by Exception and Laissez-faire leadership style) and the study's variables of interest. These negative correlations (ranging from -0.23 between Management by Exception – Active and Transformational Leadership to -0.75 between Laissez-faire leadership and Integrity) are consistent with theoretically derived expectations, and suggest that the inter-correlations between integrity, organizational justice, and transformational leadership are not merely a function of the measures being administered to the same respondents at the same point in time.

Measurement Models and Multicollinearity Concerns

Multicollinearity, in which independent variables are inter-correlated, increases standard error and reduces confidence in regression findings (Pedhazer, 1997). The three independent variables in this model, leader integrity, transformational leadership, and organizational justice, are significantly intercorrelated with coefficients ranging from 0.72 (integrity and transformational leadership) to 0.86 (integrity and organizational justice). Kline (1998) states that correlations with absolute values above 0.85 are problematic and suggest multicollinearity. In this sample, one correlation greater than 0.85 was found; leader integrity and organizational justice correlating 0.86. Further exploration using the squared multiple correlations between each variable of interest and all the other constructs in the model and the variance inflation factor (VIF) analyses Kline proposes indicate that the relationship between these two variables is not problematic at the multivariate level. The R^2s and variance inflation factors for leader integrity ($R^2 =$

0.77; VIF = 4.35) and organizational justice (R^2 = 0.78; VIF = 4.55) fell below the Kline

cut-offs (R^2 >0.9; VIFs > 10) which would indicate multicollinearity, reducing concerns

about multicollinearity in this data.

However, to further investigate concerns that transformational leadership, leader

integrity, and transformational leadership scales were measuring one general leadership

factor rather than three conceptually distinct constructs, two measurement models were

evaluated. In both models, leader integrity had two indicators: the integrity and self-

serving behavior subscales. Transformational leadership had four indicators, with each

subscale entered separately. Similarly, leader prototypicality was tested with two

indicators: one composed of the prototypicality subscales (sensitivity, intelligence,

dedication, and dynamism) and one composed of the anti-prototype subscales (tyranny

and masculinity).

The first model evaluated (see Figure 2) outlined the hypothesized relationships

between subscales (indicators) and their latent constructs. This hypothesized model met

two of the four accepted criteria for model fit (see Table 3), with a comparative fit index

(CFI) larger than 0.95 and a standardized root mean square residuals (SRMSR) below

0.08 (Hu & Bentler, 1999; Jöreskog & Sörbom, 1993). The goodness-of-fit index (GFI)

was 0.92 and the adjusted GFI (AGFI) was 0.83, thus both these indexes fell below the

preferred cut-off of 0.95 (Hu & Bentler, 1999; Jöreskog & Sörbom, 1993). All paths from

indicators to latent variables in this model were significant at p = 0.05.

Concerns that the leader integrity, transformational leadership, and leader

prototypicality scales all measured a general leadership factor rather than theoretically

distinct constructs, as outlined above, led to the evaluation of an alternative measurement

model (i.e. confirmatory factor analysis). This alternative model assessed the fit of the leader integrity, transformational leadership, and leader prototypicality subscales as indicators loading on one general leadership factor (see Figure 3). The paths from seven of the eight indicators (identical to the subscales described in the measurement models above) to a general leadership factor were significant; however, as noted in Table 3, the model failed to meet the CFI, GFI, or AGFI acceptable fit indices (Hu & Bentler, 1999). The SRMR was acceptable at 0.07.

Contrasting the hypothesized (three construct) measurement model in Figure 2 with the general leadership factor model (see Figure 3) described above enabled a direct comparison of model fit using the $\Delta \chi^2$ statistic. This comparison suggests that the three factor model in Figure 2 provides a significantly better fit to the data (see Table 3), although neither model meets all the fit indices. Thus, the hypothesized construct loadings in the model shown in Figure 2 were retained for structural model testing.

Manifest Variable SEM to Test a Fully Mediated Model

Manifest indicator structural equation modeling is an analysis strategy in which a scale score is used as the single indicator of a latent construct to reduce the number of paths included in a model, increasing the statistical power available to detect relationships. Since the scales involved in this study's model testing have been validated in the literature, their reliability levels were consistently high (ranging from 0.86 to 0.97), and the number of additional indicators and paths required in more traditional models reduced the power available for analyses, the decision was made to use manifest indicator structural equation model testing (Bollen, 1989).

Traditionally, when manifest indicator structural equation model analyses are utilized, measurement models are unnecessary because the path from each latent variable to its single indicator is specified to equal zero and an error variance is specified for each construct (Bollen, 1989). However, because use of established scales with good reliability does not rule out possible multicollinearity, which was a concern in this study, the measurement models discussed above were included to provide information about the construct loading of the scales. Testing those two alternative measurement models provides the confirmatory factor analysis information required to confidently move forward with the structural model testing.

Five manifest variable structural models were tested. The first model considered was fully mediated, with paths from transformational leadership, leader integrity, and organizational leadership to leader prototypicality and from prototypicality to trust (see Figure 4). The fully mediated model did not possess good fit to the data, with all five fit indices failing to reach Hu & Bentler's (1999) recommended cut-offs.

Tests of Partial Mediation in an SEM Framework

The models in figures 5, 6, and 7 retained the four paths in the fully mediated model and free, one at a time, the direct paths from each antecedent to trust. A final alternate model (see Figure 8), is theoretically consistent and included only the significant relationships found testing the model seen in figure 6 (i.e. the best fitting of the first four models tested). This alternate model did not include transformational leadership, instead retaining direct paths from integrity and leader prototypicality to trust, and from organizational justice and integrity to prototypicality.

The fit of each of structural model to the data was assessed using Hu & Bentler's (1999) recommended fit index cut-offs. Of the first four models tested (Figures 4-7), the model in Figure 6, which frees the direct path from leader integrity to trust while retaining the fully mediated paths, provides the best fit to the data. This is the only model with a non-significant χ^2, which researchers including Bollen (1989) suggest is the single most important criteria for determining model fit. This model also meets the GFI, CFI, and SRMR recommended cut-offs (Hu & Bentler, 1999). However, the AGFI index of 0.82 falls below the accepted AGFI cut-off of 0.95. Bollen (1989) suggests that the AGFI statistic is likely to underestimate fit for small samples, so this is not an entirely unexpected finding in light of the index's limitation.

The final model tested, shown in Figure 8, retained links from leader integrity and organizational justice to leader prototypicality and from integrity and prototypicality to trust. This model is consistent with existing theoretical frameworks outlining trust development, including the work of Dirks and Skarlicki (2004) and Whitener and colleagues (1998). The alternative model possessed a non-significant χ^2 and met the GFI, AGFI, CFI, and SRMR fit criteria, suggesting it provides adequate fit to the data. A direct comparison of model fit using a $\Delta \chi^2$ statistic to contrast the models seen in figures 6 and 8 suggests that the alternative model in figure eight provides a significantly better fit to the data.

The path coeffiecients (βs) from the best fitting model (seen in Figure 8) were used to evaluate the study hypotheses. Based on these findings, hypothesis one, which states that transformational leadership has a direct, positive relationship with trust, and hypothesis two, which suggests the relationship between transformational leadership and

trust is partially mediated by leader prototypicality, were not supported. Hypothesis three, which stated that there is a direct, positive relationship between leader integrity and trust, and hypothesis four, which suggested that the relationship between leader integrity and trust is partially mediated by leader prototypicality were supported by the structural model findings. Hypothesis five, which states that organizational justice has a direct, positive relationship with trust was not supported. Hypothesis six, which suggests that the relationship between organizational justice and trust is partially mediated by leader prototypicality was supported by the structural model findings (see Figure 8).

Exploring the Leader Prototypicality-Cognitive Trust Link

Examining the assumption that trust is a construct subject to change over time, a paired samples t-test of Global Trust at Time 1 and Time 2 was conducted. This analysis demonstrated that the mean Global Trust scores at Time 1 and Time 2 are significantly different at alpha = 0.06. While this relationship does not meet the 'p < .05' rule-of-thumb for significance, it is still suggestive considering that, at Time 1, respondents had been working with their supervisors for approximately six months. In light of those established relationships, it is interesting that we still found a difference in trust across the nine week interval between Time 1 and Time 2 data collection. Furthermore, this comparison highlights a negative change over time, with respondents reporting higher levels of Global Trust at Time 1 than at Time 2, lending credence to the idea that trust may vary in response leader behavior, rather than being directly attributable to relationship duration (Dirks & Ferrin, 1998, Whitener et al, 1998).

While theoretical discussions of trust development have highlighted the importance of cognitive processing in trust formation, there has been little empirical

assessment of the cognitions-trust link (Dirks & Skarlicki, 2004). To explore this

relationship more fully in the current sample, analyses were conducted using participant

data divided into three groups based on individual's change in their Global Trust scores

from Time 1 to Time 2. The negative change group included participants who reported

lower Global Trust at the second data collection point than at the beginning of the study.

The positive change group includes data for participants who reported higher Global

Trust at Time 2. The minimal change group includes data from participants who reported

no change or very small change (within one quarter of a unit) in Global Trust from Time

1 to 2.

In order to keep the number of participants consistent from group to group, scores

were trichotomized. The Standard Error of Measurement (SEM) was calculated for the

change in Global Trust scores from Time 1 to Time 2 in each group, and that information

was used to create confidence intervals around each median. When z score values

corresponding to 95% of the area under the normal curve were used to create confidence

intervals there was some overlap between the minimal change group and both the

negative and positive change groups; however, the negative and positive change groups

were clearly distinct from one another. In the negative change group, 95% of scores fell

between -1.16 and -0.26. In the minimal change group, 95% of participants scored

between -0.55 and 0.39 on the difference in global trust from Time 1 to Time 2. In the

positive change group, 95% of scores fell between 0.30 and 0.93. These confidence

intervals suggest that the negative and positive change groups can be compared against

one another with great confidence, although neither can be held against the minimal

change group with the same certainty. When z score values corresponding to 65 percent

of the area under the normal curve were considered in place of the traditional 95 percent

standard, confidence intervals do not overlap.

To evaluate whether these groups differed significantly, one way ANOVAs (one

per variable) were used to compare Leader Prototypicality ratings and Cognitive Trust

scores across groups (see Table 4). Significant mean differences across groups were

found for Leader Prototypicality, and Cognitive Trust ($p < 0.05$). Post hoc analyses

suggest that the negative change group's cognitive trust and leader prototypicality scores

differed significantly from those of the positive change group ($p < 0.05$ for trust, $p < 0.01$

for prototypicality); however, neither the positive or negative change groups differed

significantly from the minimal change group on these variables (see Table 5).

Mean scores on both prototypicality and trust were higher for the positive change group

than for the negative change group (see Table 4). Leader prototypicality and cognitive

trust correlated significantly in the overall sample ($r = 0.66$) as well as within each of the

three groups. The highest correlation coefficient (0.68) was found for the negative change

group and the lowest (but still significant) correlation of 0.49 was found for the positive

change group. The minimal change group had a correlation of 0.60. These findings

suggest that changes in global trust are related both to perceptions of leader

prototypicality and cognitive trust.

Discussion

The purpose of this study was to explore a cognitive process, evaluation of leader

prototypicality, by which organizational justice, transformational leadership, and leader

integrity impact the development of trust in a leader. Replicating prior results in this area,

transformational leadership, leader integrity, organizational justice, and leader

prototypicality positively correlated with cognitive trust. Leader prototypicality partially

mediated the relationship between leader integrity and trust. This finding is congruent

with past work, which suggests that leader integrity has strong relationships with both

leader prototypicality and cognitive trust (Craig & Gustafson, 1998; Kenney et al., 1996;

Mayer & Davis, 1999; Lord et al., 1984; Whitener et al., 1998).

Consistent with theoretical work suggesting that trustworthiness, honesty, and

"being fair" contribute to the evaluation of both cognitive trust and leader prototypicality,

leader integrity correlated 0.65 and 0.67 with cognitive trust and leader prototypicality in

this sample (Craig & Gustafson, 1998; Den Hartog et al., 1999; Dirks & Skarlicki, 2004;

Kenney et al., 1996; Lord et al., 1984; Mayer et al., 1995; 1999). As hypothesized, the

relationship between leader integrity and cognitive trust was partially mediated by the

cognitive evaluation of a leader's prototypicality. This finding is suggestive because past

work stresses that perceived leader integrity is a "key antecedent" to trust, so

understanding the process by which these constructs are related advances our collective

knowledge of trust in the workplace (Simons, 2000). It is likely that the relationship

between leader integrity and cognitive trust was partially, rather than fully, mediated by

leader prototypicality because the relationship between leader integrity and trust

possesses both cognitive and social-exchange components. This social-exchange process

hypothesis, which suggests trust develops out of a follower's understanding of his

relationship with his leader, is consistent with Dirks and Skarlicki's (2004) model of

affective trust development, as well as past work by Mayer et al. (1999), McKnight et al.,

(1998), and Simons (2002).

Past meta-analytic work has linked organizational justice and trust (Dirks & Ferrin, 2002). Additionally, cross-cultural analysis of leader prototypes in 62 countries found that justice is associated with leadership prototypes (Den Hartog et al., 1999). Consistent with those findings, organizational justice showed high intercorrelations with both leader prototypicality and trust in this sample. Structural model testing suggests that organizational justice is a significant predictor of leader prototypicality; however, justice did not contribute directly to trust in this sample.

Connell et al. (2003), Dirks and Ferrin (2002), and Dirks and Skarlicki (2004) all describe trust as an important theoretical component of relationships between transformational leaders and their followers. Consistent with this idea, transformational leadership correlated 0.59 with leader prototypicality and 0.58 with cognitive trust. Past empirical work suggests that transformational leadership is a significant predictor of implicit theories of leadership prototypicality and trust; however, structural model results indicate transformational leadership is not a significant predictor of either prototypicality or trust in the present study (Bass & Avolio, 1989; Butler, et al., 1999; Connell, et al., 2003; Ross & Offerman, 1997).

While the hypothesized cognitive process does not explain the process by which transformational leadership impacts trust in the present study, a cognitive process explanation remains possible because the inter-correlations between the antecedent variables may have led to overlap in the variance for which they accounted, reducing that attributed to transformational leadership. Another possibility is that transformational leadership may instead affect trust through an affective, social exchange process, as suggested in Ambrose and Schminke (2003), rather than through a cognitive process.

Post hoc analyses of global trust data suggest that people whose global trust decreased from the first data collection point to the second reported that their leaders were less prototypical and that they had less cognitive trust in their leader, relative to participants whose global trust increased across data collection points. This higher trust-higher prototypicality, lower trust-lower prototypicality pattern of findings supports the hypothesized link between the cognitive evaluation of leader prototypicality and trust.

Strengths

This study's prime contribution was the empirical test of a cognitive model of trust development in an appropriate field setting. The organizational sample provided the interdependent leader-follower dyads needed to study trust effectively, while the longitudinal design made it possible to evaluate trust development as a process that occurs over time (Dirks & Skarlicki, 2004; Serva et al., 2005). This study provides unique exploratory descriptive analyses of the leader-prototypicality link which support the hypothesized link between the cognitive evaluation of leader prototypicality and trust.

Limitations

The new relationships required for this research, sensitive nature of topics such as leader integrity, and longitudinal focus of the work made finding and retaining a sample difficult. To receive access to a real-world organizational sample where trust is relevant and authentic, a series of compromises were negotiated that limit the utility of these findings. This study suffers from several unavoidable limitations: first, data was collected at two points in time, rather than the three phases suggested by the model in Figure 1. Additionally, by the first data collection point, leaders and followers had been in dyads for approximately six months, limiting the likelihood that significant change would be

effected over the nine weeks between data collection points. The sample size attained in this research is small and limits the statistical power of the analyses, as well as the generalizability of findings. Additionally, all data was gathered via self-report measures from a single source (followers). The possibility of using other data collected by the organization (i.e. incident reports, etc) was explored with the department head; however, the organization was unable to make data from any other sources available for the project.

Future research

Future research in the cognitive process area may take three paths: replicating the current work in a larger sample composed of newly formed leader-follower dyads; assessing how the cognitive process of trust development occurs; and/or exploring other antecedents which may contribute to trust through the cognitive process outlined in this work. Descriptive research focusing on the leader prototypicality-cognitive trust link would improve our understanding of the important cognitive process linking these constructs. Additionally, it would be fruitful to explore trust development through the relationship-based social exchange mechanism that Dirks and Skarlicki (2004) suggest contributes to the development of affective trust. Work examining the contributions of leader integrity, organizational justice, and transformational leadership to affective trust via a social exchange mechanism would provide a useful counterpart to the present study.

Conclusions

Despite applied interest and past theoretical efforts, few longitudinal empirical tests of trust development have been undertaken (i.e. Dirks & Ferrin, 2002; Dirks & Skarlicki, 2004; McKnight et al., 1998; Whitener et al., 1998). This thesis developed a

character-based cognitive process model of trust development based on prior theoretical

models. Leader prototypicality evaluation was found to be a process variable that

captures the cognitive procedure linking trust and leader integrity. While the model

proposed was not fully supported, it provides a useful jumping off place for future work

in this area. The findings are particularly suggestive in light of the limitations enforced by

the sample, suggesting that follow-up work in larger samples with more novel leader-

follower dyads may rapidly improve our understanding of these phenomena.

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Tables

Table 1
Theoretical Antecedents and Outcomes of Trust in Leadership

Antecedents	Outcomes
Organizational Structure	Satisfaction with a Leader
HR Policies and Procedures	Job Satisfaction
Organizational Culture	Job Performance
Initial Interactions	Goal Commitment
Expectations	Belief in Information
Costs of Exchanges	Organizational Commitment
Self-efficacy	Team performance
Values	Team effectiveness
Transformational Leadership	Increased commitment to authorities
Transactional Leadership	Voluntary acceptance of authorities' decisions
Perceived Organizational Support	Increased support for authorities
Propensity to Trust	Intent to Quit (-)
Cooperation	
Interactional Justice	
Procedural Justice	
Distributive Justice	
Participative Decision Making	
Length of Relationship	
Leader Member Exchange	
Leader Honesty	
Leader Integrity	
Leader Competence	
Leader Benevolence	
Leader Ability	
Leader Consistency	
Managerial Trustworthy Behavior	
Quality of Communication	
Demonstration of Concern	
Similarity	
Professional Credentials	

Note. (-) indicates a negative relationship between trust and this variable.

Table 2

Summary statistics for construct measures

Variable	M	SD	N	2	3	4	5	6	7	8	9	10
1. Leader Integrity	5.95	1.09	116	.72(**)	.86(**)	.67(**)	.65(**)	.88(**)	.63(**)	-.38(**)	-.71(**)	-.75(**)
2. Transformational Leadership	2.77	.739	117	-	.77(**)	.59(**)	.58(**)	.78(**)	.59(**)	-.23(*)	-.67(**)	-.61(**)
3. Organizational Justice	4.32	.725	117		-	.65(**)	.60(**)	.80(**)	.66(**)	-.36(**)	-.63(**)	-.67(**)
4. Leader Prototypicality	6.76	1.48	93			-	.66(**)	.64(**)	.82(**)	-.28(*)	-.46(**)	-.43(**)
5. Cognitive Trust	4.84	1.14	93				-	.60(**)	.74(**)	-.26(*)	-.50(**)	-.55(**)
6. Global Trust - Time 1	3.89	.72	117					-	.64(**)	-.34(**)	-.67(**)	-.67(**)
7. Global Trust - Time 2	3.67	.82	92						-	-.33(**)	-.42(**)	-.49(**)
8. Management by Exception – Active	1.85	.74	117							-	.30 (**)	.28(**)
9. Management by Exception – Passive	.93	.78	117								-	.74(**)
10. Laissez-Faire Leadership	.69	.56	117									-

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 3

Structural Equation Model Fit Indices

	χ^2	df	$\Delta \chi^2$	χ^2 /df	GFI	AGFI	CFI	SRMR
Measurement Models								
Hypothesized Model (Figure 2)	27.94	17	-	1.64	0.92	0.83	0.99	0.04
General Factor Model (Fig. 3)	75.01*	20	47.07** [a]	3.75	0.81	0.66	0.93	0.07
Structural Models								
Fig. 4 – Fully Mediated	22.56*	3	-	7.52	0.89	0.47	0.92	0.19
Freed Path								
Fig. 5 – Transf. Leadership to Trust	13.25*	2	9.31** [b]	6.63	0.92	0.46	0.95	0.09
Fig. 6 – Integrity to Trust	4.84	2	17.72** [b]	2.42	0.98	0.82	0.99	0.04
Fig. 7 – Org. Justice to Trust	19.86*	2	2.7 [b]	9.93	0.90	0.29	0.92	0.18
Fig. 8 – Alternate Model	1.88	1	2.96 [c]	1.88	0.99	0.88	0.99	0.03
Acceptable Fit					> 0.95	> 0.95	> 0.95	< 0.8

* $\Delta \chi^2$ is significant at the 0.05 level.   ** $\Delta \chi^2$ is significant at the 0.01 level.
[a] $\Delta \chi^2$ compared to Figure 2.   [b] $\Delta \chi^2$ compared to Figure 4.   [c] $\Delta \chi^2$ compared to Figure 6

Table 4

Analysis of Variance Across Global Trust Groups

Source	df	F
	Between Subjects	
Cognitive Trust	2	3.46*
Leader Prototypicality	2	4.61**

** Test statistic is significant at the 0.01 level (2-tailed).
* Test statistic is significant at the 0.05 level (2-tailed).

Table 5

Descriptive statistics for Global Trust Groups

Variable		N	Mean	Std. Deviation
Negative Change	Cognitive Trust	30	4.48_a	1.18
	Leader Prototypicality	30	6.26_b	1.40
Minimal change	Cognitive Trust	31	5.03_{ac}	0.96
	Leader Prototypicality	31	7.05_{bd}	1.55
Positive Change	Cognitive Trust	20	5.19_c	0.92
	Leader Prototypicality	20	7.38_d	0.92

Means which do not share subscripts significantly differ at $p < 0.05$.

Figures

Figure 1

Formation of Trust Process Model
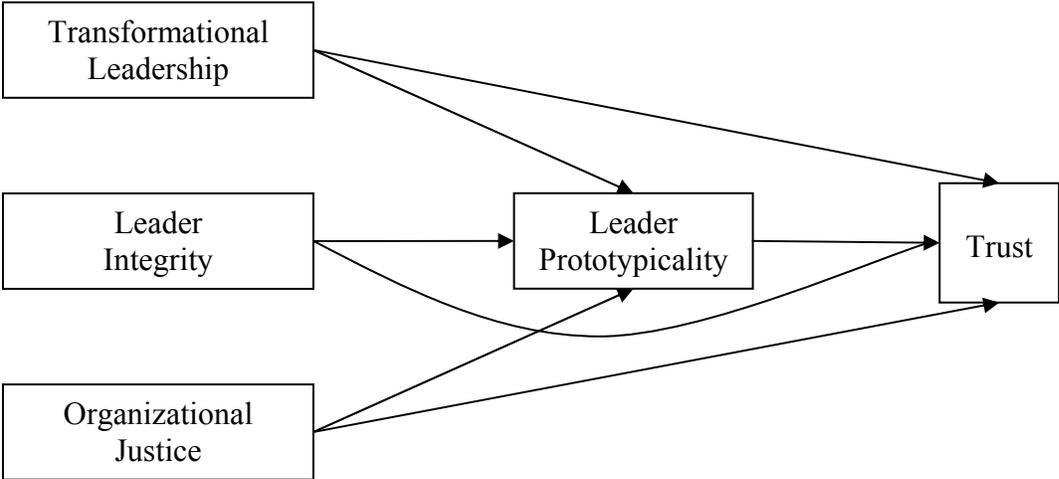
Figure 2

Hypothesized Measurement Model
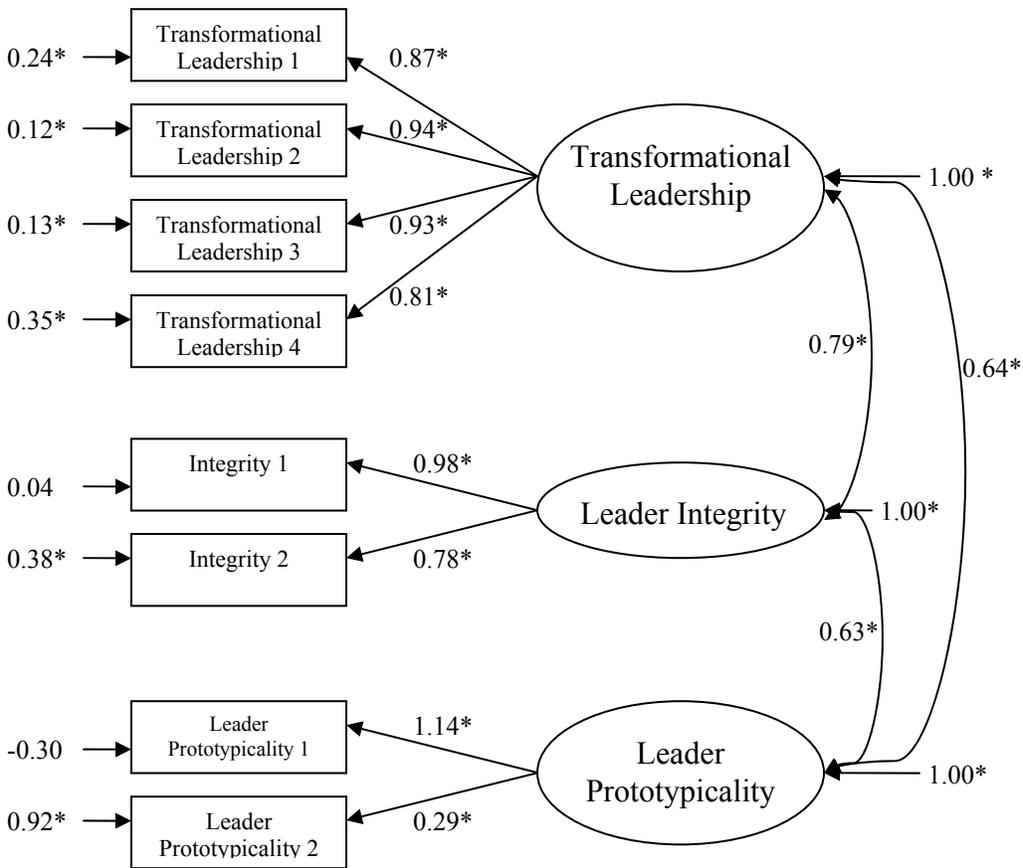
* Indicates significance at the 0.05 level.

Figure 3

Measurement Model - General Factor of Leadership
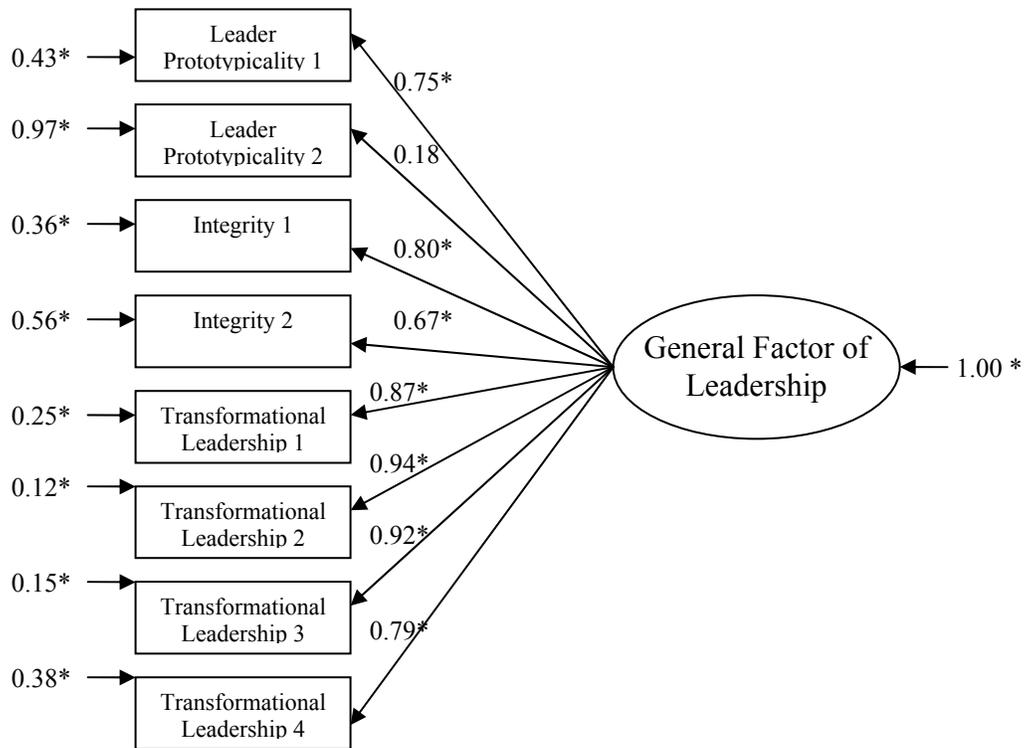
* Indicates significance at the 0.05 level.

Figure 4

Fully Mediated Manifest Indicator Structural Model
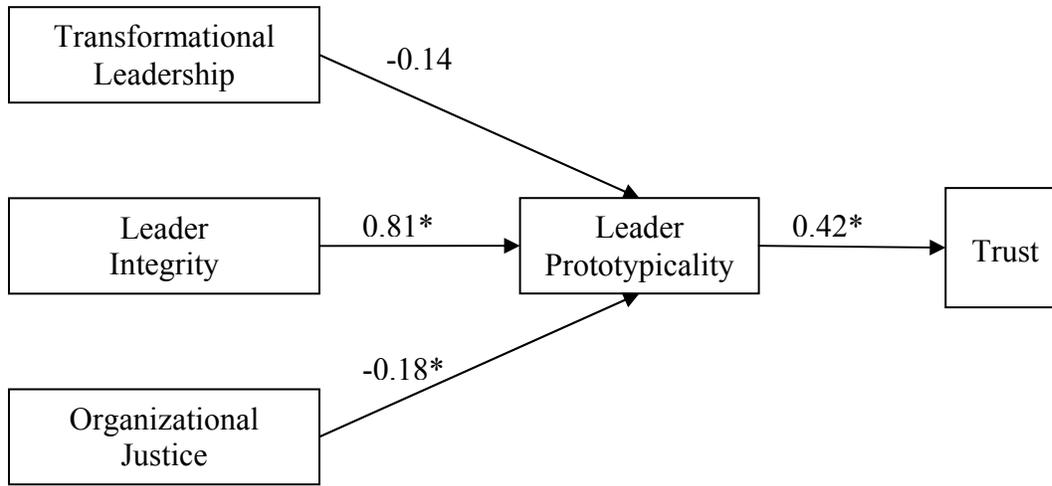
* Indicates significance at the 0.05 level.

Figure 5

Fully Mediated Manifest Indicator Structural Model, Path from Transformation Leadership to

Trust Freed
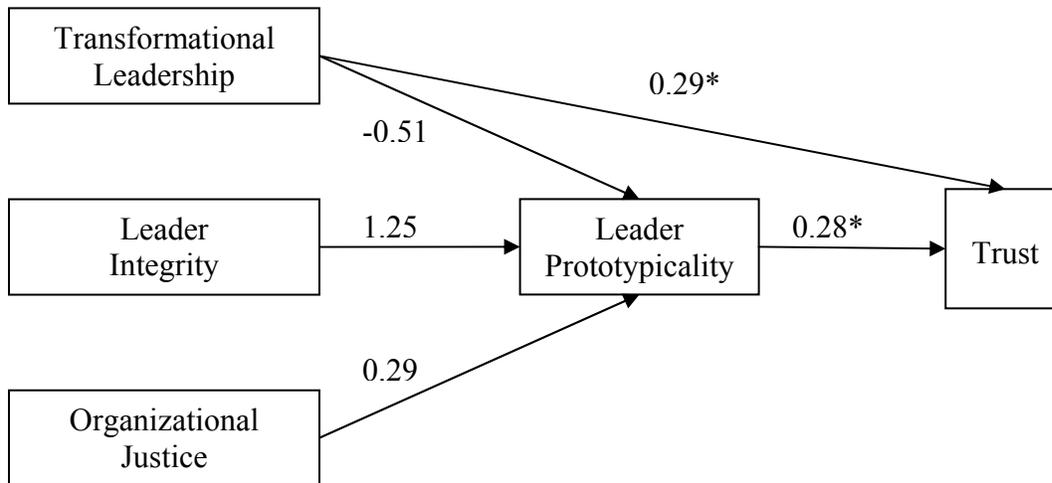
* Indicates significance at the 0.05 level.

Figure 6

Fully Mediated Manifest Indicator Structural Model, Path from Leader Integrity to Trust Freed
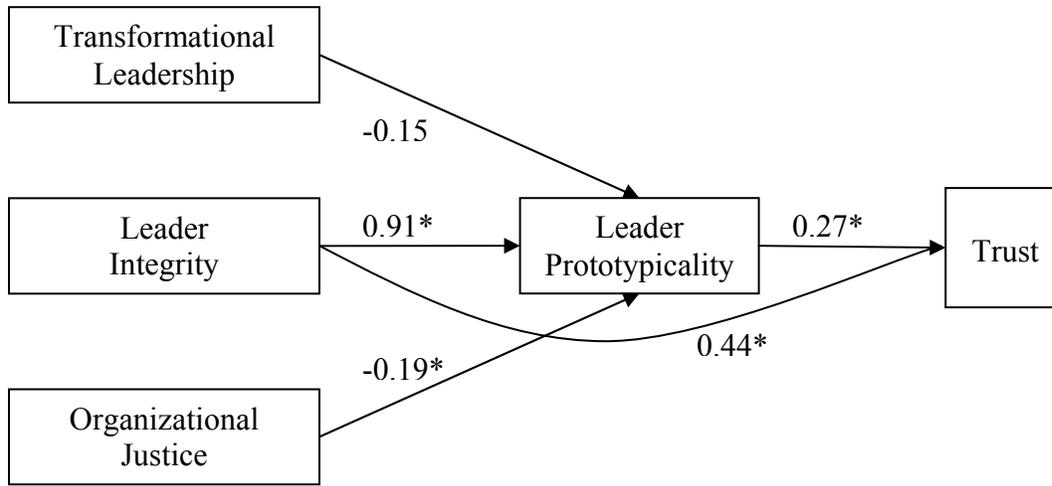
* Indicates significance at the 0.05 level.

Figure 7

Fully Mediated Manifest Indicator Structural Model, Path from Organizational Justice to Trust

Freed
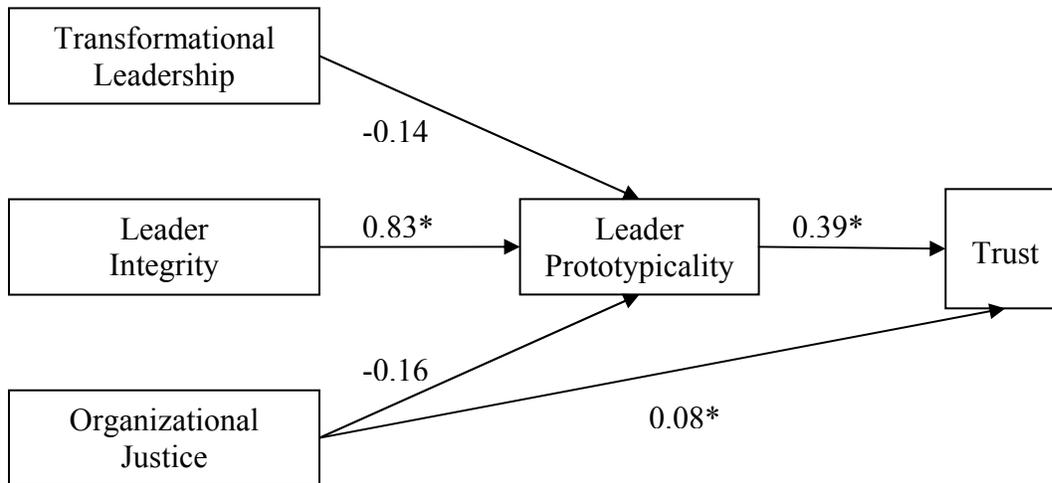
* Indicates significance at the 0.05 level.

Figure 8

Alternate Manifest Indicator Structural Model
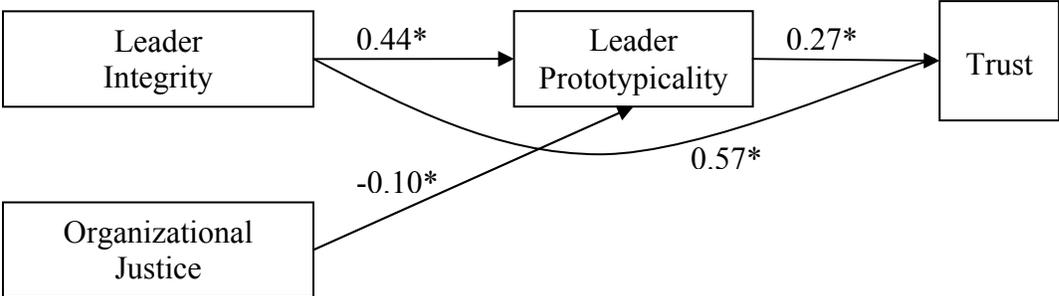
* Indicates significance at the 0.05 level.

Appendices

Appendix A: Organizational Justice, measured via Colquitt's (2001) Organization Justice Scale

Interpersonal Justice Scale

The following items refer to your building supervisor. To what extent:

1. Has (he/she) treated you in a polite manner?

1	2	3	4	5
to a small extent				to a large extent

2. Has (he/she) treated you with dignity?

1	2	3	4	5
to a small extent				to a large extent

3. Has (he/she) treated you with respect?

1	2	3	4	5
to a small extent				to a large extent

4. Has (he/she) refrained from improper remarks or comments?

1	2	3	4	5
to a small extent				to a large extent

Informational Justice Scale

The following items refer to your supervising principal. To what extent:

1. Has (he/she) been candid in (his/her) communications with you?

1	2	3	4	5
to a small extent				to a large extent

2. Has (he/she) explained the procedures thoroughly?

1	2	3	4	5
to a small extent				to a large extent

3. Were (his/her) explanations regarding the procedure reasonable?

1	2	3	4	5
to a small extent				to a large extent

4. Has (he/she) communicated details in a timely manner?

1	2	3	4	5
to a small extent				to a large extent

5. Has (he/she) seemed to tailor (his/her) communications to individual's specific needs?

1	2	3	4	5
to a small extent				to a large extent

Appendix B: Implicit Leadership Theory (prototypicality), measured via the Implicit Theories of Leadership Scale (Epitropaki & Martin, 2004)

How characteristic of <u>your building supervisor</u> is each of the following traits?

1. Helpful

1	2	3	4	5	6	7	8	9

Not at all characteristic   Extremely characteristic

2. Understanding

1	2	3	4	5	6	7	8	9

Not at all characteristic   Extremely characteristic

3. Sincere

1	2	3	4	5	6	7	8	9

Not at all characteristic   Extremely characteristic

4. Intelligent

1	2	3	4	5	6	7	8	9

Not at all characteristic   Extremely characteristic

5. Educated

1	2	3	4	5	6	7	8	9

Not at all characteristic   Extremely characteristic

6. Clever

1	2	3	4	5	6	7	8	9

Not at all characteristic   Extremely characteristic

7. Knowledgeable

1	2	3	4	5	6	7	8	9

Not at all characteristic   Extremely characteristic

8. Dedicated

1	2	3	4	5	6	7	8	9

Not at all characteristic   Extremely characteristic

9. Motivated

1	2	3	4	5	6	7	8	9

Not at all characteristic   Extremely characteristic

10. Hard-working

1	2	3	4	5	6	7	8	9

Not at all characteristic   Extremely characteristic

11. Energetic

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Not at all
characteristic

Extremely
characteristic

12. Strong

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Not at all
characteristic

Extremely
characteristic

13. Dynamic

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Not at all
characteristic

Extremely
characteristic

14. Domineering

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Not at all
characteristic

Extremely
characteristic

15. Pushy

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Not at all
characteristic

Extremely
characteristic

16. Manipulative

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Not at all
characteristic

Extremely
characteristic

17. Loud

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Not at all
characteristic

Extremely
characteristic

18. Conceited

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Not at all
characteristic

Extremely
characteristic

19. Selfish

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Not at all
characteristic

Extremely
characteristic

20. Male

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Not at all
characteristic

Extremely
characteristic

21. Masculine

  1   2   3   4   5   6   7   8   9
  Not at all   Extremely
characteristic   characteristic

Implicit theories of leadership consist of seven first-order factors, which Epitropaki & Martin (2004) group into two

higher latent constructs: Leader Prototype and Leader Anti-Prototype. Leader prototype encompasses sensitivity

(measured by items one - three), intelligence (items four - seven), dedication (items eight - 10), and dynamism (items

11-13). Leader anti-prototype consists of tyranny (measured by items 14 – 19) and masculinity (items 20 – 21).

Appendix C: Cognitive Trust, measured via McAllister's (1995) Cognitive Trust in a Specific Coworker Items

Please indicate your agreement with the following statements about your building supervisor:

_____

1. This person approaches his/her job with professionalism and dedication.
1   2   3   4   5   6   7
strongly disagree   strongly agree

2. Given this person's track record, I see no reason to doubt his/her competence and preparation for the job.
1   2   3   4   5   6   7
strongly disagree   strongly agree

3. I can rely on this person not to make my job more difficult by careless work.
1   2   3   4   5   6   7
strongly disagree   strongly agree

4. Most people, even those who aren't close friends of this individual, trust and respect him/her as a coworker.
1   2   3   4   5   6   7
strongly disagree   strongly agree

5. Other work associates of mine who must interact with this individual consider him/her to be trustworthy.
1   2   3   4   5   6   7
strongly disagree   strongly agree

6. If people knew more about this individual and his/her background, they would be more concerned and monitor his/her performance more closely.
1   2   3   4   5   6   7
strongly disagree   strongly agree

Respond to the following items on the scale provided.

From Gillespie & Mann (2004):

1. How would you rate your overall trust in your building supervisor?

1	2	3	4	5
No trust				Complete trust

From Mayer & Davis (1999):

2. If I had my way, I wouldn't let my building supervisor have any influence over issues that are important to me.

1	2	3	4	5
Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly

3. I would be willing to let my building supervisor have complete control over my future in Residence Life.

1	2	3	4	5
Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly

4. I really wish I had a good way to keep an eye on my building supervisor.

1	2	3	4	5
Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly

5. I would be comfortable giving my building supervisor a task or problem which was critical to me, even if I could not monitor their actions.

1	2	3	4	5
Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly

6. My building supervisor has a high level of integrity.

1	2	3	4	5
Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly

Developed for this study:

7. I feel confident that my building supervisor acts with my best interests in mind.

1	2	3	4	5
Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly

8. My building supervisor inspires trust in his/her followers.

1	2	3	4	5
Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly

9. My building supervisor can be trusted.

1	2	3	4	5
Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly

10. My building supervisor can be relied on.

1	2	3	4	5
Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly

11. My building supervisor's behavior is predictable.

1	2	3	4	5
Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly

12. I have to guard against my building supervisor's actions.

1	2	3	4	5
Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly

Items two, four, and six are reverse scored.

Appendix E: Demographic Questionnaire for Residence Advisors

What is the name of your building?

Who is your building supervisor?

Please select/provide the best answer for the following questions:

What is your age?

What is your gender? M F

What year are you in school:

Freshman – Sophomore – Junior – Senior - 5th Year Senior - 1st Year Graduate Student- 2nd Year Graduate Student – Other (please specify)

Is this your first year as an RA? Yes / No

If you answered "No" to the last question: How many semesters (not including this one) have you been an RA?

How long (in months or years) have you known your building supervisor?

How well do you know your Building Supervisor?

Very well Well Not well Not at all

How often do you interact directly with your Building Supervisor?

Less than 1 time / week One to two times / week

Three to four times / week Five to six times / week

Seven or more times / week

Appendix F: Demographic Questionnaire for Building Supervisors

Please select/provide the best answer for the following questions:

What is the name of your building?

What is your age?

What is your gender?   M   F

How many years have you worked as a Residence Life Building Supervisor at Virginia Tech?

How many years have you worked as a Residence Life Building Supervisor at any school

     (including Virginia Tech)?

How many years have you have you worked as a Residence Advisor?

Are you a full-time student? Yes / No

     If you answered "yes" to the last question: what year in school are you?

Are you a member of the professional staff? Yes / No

Appendix H**:** Information Sheet for Participants

<div align="center">

VIRGINIA POLYTECHNIC INSTITUE AND STATE UNIVERSITY
Information Sheet for Participants

</div>

Title of project: New leader-follower interactions
Investigator: Corrie B. Whitmore
Faculty Advisor: Roseanne Foti, Ph.D.

I. Purpose

  This study will assess interactions between Residence Advisors (RAs) and their supervisors to evaluate variables which may contribute to professional relationship development. The results of this study will add to the literature on leader-follower professional relationships, and have practical importance for many organizations, including student life organizations, which promote strong relationships between leaders and followers. The results of this research will be made available, upon request, to those interested in the findings.

II. Procedures:

  All participants will be asked to complete a series of questionnaires online. Each participating RA will receive an email with a link directing them to questionnaires to be completed at two points in the semester. The first questionnaire should take approximately 10 to 20 minutes to complete. The second questionnaire should take approximately 15 minutes to complete. Those who do not complete a survey within three business days of the email being sent will receive a follow-up, reminder email containing a link to the questionnaires. A final reminder will be sent one week after the first email to participants who have not responded by that time.

III. Risks

  There are no more than minimal risks to you for participating in this study.

V. Extent of Anonymity and Confidentiality

  The results of this study will remain strictly confidential. Your name and participant identification number will never be linked. This participant number exists only to provide a reference for the researcher. At no time will the researcher release the data collected in the study to anyone, other than those individuals working on the research project

VI. Freedom to Withdraw

  Participants are free to withdraw from this study at any time without penalty. Participants are free not to answer any questions that they choose without penalty.

VIII. Approval of Research

  This research has been approved, as required, by the Institutional Review Board for Research Involving Human Participants at Virginia Polytechnic Institute and State University and by the Department of Psychology.

IX. Participant's Responsibilities

  I voluntarily agree to participate in this study.

X. Participant's Permission

  I have read and understood the above description of the research study, had an opportunity to ask questions and had them answered, and hereby acknowledge the above and give my voluntary consent for participation in this study. I understand that if I participate, I may withdraw at any time without penalty. I understand that if I have any questions about this research project, I can contact any one of the following:

Corrie Whitmore   Dr. Roseanne J. Foti

Investigator   Faculty Advisor

(540) 392-2554   (540) 231-5814

Dr. David Harrison   Dr. David Moore

Chair, Human Subjects Committee   Chair, IRB

 (540) 231- 4422   (540) 231- 4991

_____   _____

        Name   E-mail

Virginia
Tech
VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY

Institutional Review Board
Carmen Green
IRB Administrator
Research Compliance Office
1880 Pratt Drive, Suite 2006(0497), Blacksburg, VA 24061
Office: 540/231-4358; FAX 540/231-0959
email: cigreen@vt.edu

DATE: January 19, 2006

MEMORANDUM

TO: Roseanne J. Foti Psychology
              Corrie Whitmore

FROM: Carmen Green

SUBJECT: **IRB Exempt Approval:**   "The Development of Trust in Leadership" IRB # 05
              -740

I have reviewed your request to the IRB for exemption for the above referenced project. I concur
that the research falls within the exempt status.   Approval is granted effective as of January 19,
2006.

Virginia Tech has an approved Federal Wide Assurance (FWA00000572, exp. 7/20/07) on file
with OHRP, and its IRB Registration Number is IRB00000667.

cc: File
    Department   David W. Harrison

Corrie Baird Whitmore

109 Williams Hall (0436)	corriew@vt.edu	*PO Box 4076*
Blacksburg, VA 24061		*Palmer, AK 99645*
540-392-2554		*907-746-0294*

Education:

<u>Virginia Polytechnic Institute and State University (Virginia Tech)</u>

M. S. in Industrial and Organizational Psychology　　　05/2007 (Defended 2/23/07)

Master's Thesis: *Development of trust in leadership: Exploring a cognitive process model.*

<u>University of Alaska Fairbanks</u>

B.A. Psychology　　　05/2003

2003 Psychology Student of the Year

Research: *The effect of dietary antioxidants on learning & memory in mature Holland-lop rabbits.*

Presentations

Whitmore, C.B. (March 2007). Development of trust in leaders: exploring a cognitive process model. Poster presented at the Virginia Tech Graduate Student Association Research Symposium, Blacksburg, VA.

Teaching and Research Experience:

<u>Virginia Polytechnic Institute and State University (Virginia Tech)</u>

Research Assistant; Psychology　　　*Jan. 2007 – May 2007*

- Assisted Dr. Stephens (department chair) with projects, including the development of recruiting materials. Worked in the Psychology Department Office facilitating faculty teaching and research.

Instructor; Psychological Measurement Lab; Psychology　　　*Sept. 2006 – Dec. 2006*

- Taught psychological analysis using SPSS to two sections of senior psychology students.

- Developed curriculum and assignments teaching students how to answer applied questions using statistics and run SPSS operations, including the use of syntax programming.

Teaching Assistant; Child Social Development; Psychology　　　*Sept. 2005 – May 2005*

- Worked closely with Dr. Julie Dunsmore to facilitate two senior seminars in Child Social Development and a Developmental Psychology course.

- Planned discussions and activities, administered quizzes, graded literature reviews and research proposals.

Instructor; Introductory Psychology; Psychology　　　*Sept. 2004 – May 2005*

- Developed curriculum and taught lessons on a variety of topics designed to complement larger introductory psychology lecture sessions.

- Administered quizzes, graded essays, and proctored exams.

Research Assistant; Virginia Tech ADVANCE Project　　　*Sept. 2003 – May 2004*

- Assisted the principal investigators on a five year, $3.5 million dollar National Science Foundation project exploring the roles of women in science and engineering.

- Conducted focus groups to gather baseline data, facilitated faculty meetings, and prepared background materials to anchor our project in the appropriate theoretical domains.

Professional Affiliations and Service:

Investigative Board Member; Virginia Tech Graduate Honor System	*2005 – Present*
Student Member, Society for Industrial & Organizational Psychology	*2004 – Present*
Peer Group Facilitator; Leadership Tech Student Leadership Program	*2005 – 2006*

Coursework Completed at Virginia Tech:

Course Number	Course Name	Semester	Credits
STAT 5665	Statistics for Social Science Research I	Fall 2003	3
PSYC 5314	Psyc. Perspectives In Social Psychology	Fall 2003	3
MGMT 6315	Seminar in Org. Behavior	Fall 2003	3
PSYC 5274	Personality Processes	Spring 2003	3
STAT 5666	Statistics for Social Science Research II	Spring 2003	3
PSYC 5315	Research Methods	Spring 2003	3
PSYC 5126	Organizational Psychology II	Spring 2003	3
PSYC 5125	Organizational Psychology I	Fall 2004	3
EDRE 6624	Measurement Theory In Ed.	Fall 2004	3
EDRE 6634	Advanced Statistics for Ed. (Regression)	Spring 2005	3
PSYC 5115	Industrial Psychology	Spring 2005	3
PSYC 6934	Advanced Topics in Organizational Psyc.	Fall 2005	3
HD 5214	Theoretical Foundations of Child Development	Fall 2005	3
PSYC 6014	Quantitative Topics. In I&O Psyc. (Meta-analysis)	Spring 2006	3
PSYC 6924	Adv. Topics in Industrial Psyc.	Fall 2006	3
	Total credits earned	(incl. research credits):	95
		GPA:	3.53