A NEW TRUST IN LEADERSHIP FRAMEWORK: A COGNITION-BASED AND AFFECT-BASED PROCESS

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A NEW TRUST IN LEADERSHIP FRAMEWORK: A COGNITION-BASED AND AFFECT-BASED PROCESS

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Dissertation

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ABSTRACT

A new dual-process cognitive and affective trust in leadership framework is proposed and tested in a field study. 504 undergraduate students participated in the study and structural equation modeling was employed to perform the analysis. Cognition-based trust perception works together with cognitive reaction toward the leader to form cognitive trust determinant, while relationship-based trust perception works together with affective reaction toward the leader to form affective trust determinant. The cognitive and affective trust determinants influence trust willingness at the same time. Most of the hypothesized paths were supported. In addition, the relationships between memory systems and different trust processes were tested using an experimental design. It was proposed that semantic memory has a stronger connection to the cognitive trust path; whereas, episodic memory has a stronger connection to the affective trust path. However, results did not support these hypotheses. Instead, results suggested that the memory conditions equally influence cognitive and affective trust paths to trust willingness. Exploratory analyses were conducted on organizational antecedents and outcomes for cognition-based trust perception and relationship-based trust perception. Explanations and practical implications of findings, future directions of research and limitations of this study are discussed.

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CHAPTER I

INTRODUCTION

The 2008 race for the Democratic Party nomination for Presidential drew a lot of public attention. The battle between Hillary Clinton and Barack Obama was tight and intense, in part because the two candidates showed people two contrary political images. Hillary Clinton was perceived as a candidate who has a lot of experience and was capable in handling national policy. However, she appeared to lack sufficient ability to bond emotionally with people. It was easy for people to say that they chose her because of her ability, but few people would say that they chose her because they liked her. In contrast, Barack Obama was more charming and a great elocutionist. He could easily touch people's hearts and evoke emotional reactions. His weakness, however, was political experience. He had not shown much evidence of ability in nation policy making at the time of election. The two candidates were so different from each other. One's strength was another's weakness; whereas, ones' weakness was another's strength. Yet they each had broad appeal to voters who were ready to risk four years under that candidate's leadership. What are the characteristics and processes that bring about these high levels of trust for two very different individuals? The answers to this question lie at the intersection of the leadership and trust literatures as well as in models that emphasize cold cognitions and hot emotions as a basis of trust. Such issues are the focus of this dissertation.

In addressing such issues, researchers have proposed different trust in leadership theories. Some researchers focused on the process of trust formation and argued that trust was developed through a cognitive process that emphasizes characteristics of the leader (Mayer, Davis, & Schoorman, 1995), while others also included the relationship between the follower and the leader, proposing both character-based and relationship-based trust (McAllister, 1995). These different ideas can be projected into the comprehensive yet simple framework shown in Figure 1.1.

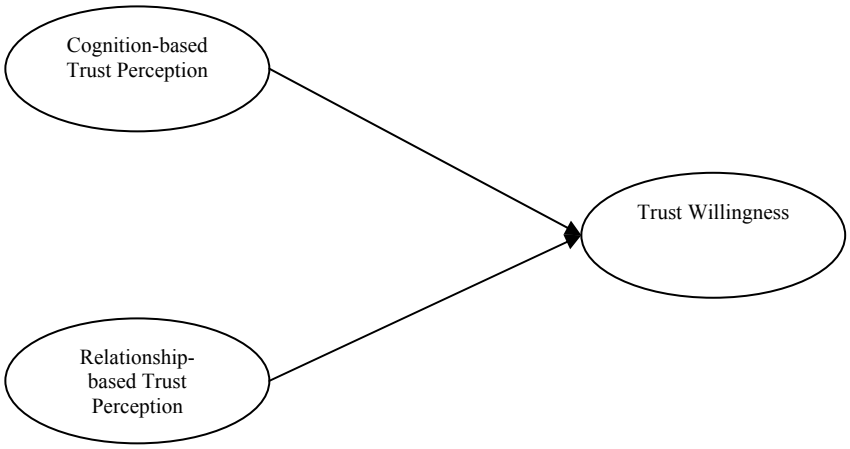

Figure 1.1

A simple framework of trust process involving cognition-based and relationship-based trust perceptions.

In this dissertation, the major objectives are to use this simple framework to address three issues. First, how does the process of trust in leadership aligns with the basic cognitive and affective information processes of human beings? This focus helps trust researchers better understand the internal dynamics of the trust in leadership

process. Second, how does trust development based on cognition and affect parallel the nature of the semantic and episodic memory systems, respectively? This parallel has never been addressed by researchers in the past, and it will help trust researchers to think about trust in leadership from a more comprehensive perspective. Third, this new framework is employed to integrate several trust in leadership theories. This framework is compatible with various trust in leadership theories and also suggests new research directions. It was tested using a field study with an experimental design. Furthermore, the same data were used to run an exploratory analysis focused on organizational antecedents and outcomes of different types of trust perceptions.

An Integrative Trust in Leadership Framework

Alternative Bases of Trust

In this framework, *trust willingness* is a decision to trust your leader or not. Cognition-based trust perception and relationship-based trust perception influence trust willingness. How various trust in leadership theories fit into this simple framework is discussed in a later section when these trust theories are introduced. In the next few sections the theoretical rationales for this simple framework are provided and some more complex processes within the framework are discussed.

In this proposed framework, *cognition-based trust perception* is an evaluation of the leader's general trustworthy characteristics such as ability, honesty, intelligence etc. According to Dirks and Ferrin (2002), followers attempt to draw inferences about the leader's characteristics. These inferences build the foundation for the development of trust in the leader (Mayer et al., 1995). Cognition-based trust perception refers to the

same thing as these inferences. It develops through the observation of the leader's behaviors and performance. This type of trust perception is a rational evaluation and is viewed as a part of a cognitive trust process (McAllister, 1995). People who have a high level of cognition-based trust perception of someone will tend to say "I trust him because he is reliable and capable in doing his tasks."

Comparatively, *relationship-based trust perception* is a perception of the relationship between the trustor and the trustee. The perceived quality of the relationship and issues such as care and consideration of the relationship are central in the trust process (Dirks & Ferrin, 2002). Care and consideration for the welfare of each other are emotional investments in trust relationships (McAllister, 1995). According to Lewis and Weigert (1985), emotional bonds between individuals can provide the foundation for trust. Therefore, relationship-based trust perception is viewed as a part of an affective trust process (McAllister, 1995). People who have a high level of relationship-based trust perception of someone will say "I trust him because I like him and he likes me."

I propose that the influence of cognition-based trust perception and relationship-based trust perception on trust willingness involves different processes. One is a cognitive, analytical process, while the other is a more affective process. As I continue to describe in the following section, the proposed framework aligns with two components of basic human information processing: cognition and affect.

Cognitive and Affective Processing Systems

The distinction between cognitive and affective representations has both psychological and biological bases. The idea that there are two channels in human

information processing has a long history in both research and practice. One representation is essentially cognitive, while the other one is fundamentally emotional and reactive. The distinction exists in external stimuli as Berlyne (1960) and Estes (1972) suggested. Any stimuli may have two functions: informative-cognitive and motivating-arousing. In addition, the distinction exists in internal human function. For example, Mischel and Shoda (1995) proposed a cognitive-affective personality system. This system identified cognitive units, such as encoding strategies, and affective units, such as affective responses, which in combination allow people to interact with their environment in a relatively stable manner. Moreover, the system also suggested that cognitive units and affective units interactively influence human behaviors.

In the following section, the theoretical basis for the proposed trust framework is introduced. The two processes are cognition-based trust perception influencing trust willingness and relationship-based trust perception influencing trust willingness. The empirical foundation of the framework is elaborated from perspectives of self-control system, memory type, and leadership studies.

Hot/Cool System and Trust Process

Hot/Cool System Framework

Metcalfe and Mischel (1999) proposed a hot/cool system framework for understanding the process that enables self-control. According to the framework, there are two types of processing in self-control: hot and cool, each of which involve separate but interacting systems. The *hot emotional system* is specialized for quick emotional processing and responding on the basis of unconditional or conditional trigger features. It

is called “go” system. The *cool cognitive system* is specialized for complex spatiotemporal representations and thoughts. It is called the “know” system. According to these researchers, the characteristics of the hot system are emotional, simple reaction, reflexive, fast, developing early, accentuated by stress, and stimulus controlled; whereas, the characteristics of the cool system are cognitive, complex responses, reflective, slow, developing late, attenuated by stress, and self-controlled.

The hot/cool system framework was supported by a recent study (Ayduk, Mischel, & Downey, 2002). Researchers had subjects imagine an autobiographical rejection experience. Three types of attention instructions were provided. One was a hot focus instruction that guided subjects to focus on their physiological and emotional reaction. The second was a cool focus instruction that guided subjects to focus on the physical setting of the experience. The third instruction was a control condition and subjects received no specific attention focus guide. The hostility reaction to the rejection experience was measured as the dependent variable. According to the hot/cool system framework, it was hypothesized that an arousal focus accessing the hot system should increase hostility; whereas, a distancing distraction focus accessing the cool system should attenuate hostility. The findings supported these hypotheses, and they had direct relevance to the central premise underlying my cognition-based and relationship-based trust framework. Specifically, events such as rejection that trigger affective reactions have effects on trust willingness that mostly occur through the affective trust process, and these affective effects might diminish if only the cognitive process is emphasized.

The two systems each have their own biological basis. In an analysis of human trauma memory, Metcalfe and Jacobs (1996, 1998) found that human memory consisted of two interactive systems: the hot system that is amygdala-based and the cool system that is hippocampally-centered. The cool system also included frontal cortex structures and other cortical areas that support comprehension, semantic processing, working memory, metacognition, planning, and problem-solving.

The determinants of the hot versus cool systems are different as well. First, the hot and cool systems develop differently in time. The hot system develops early; whereas, the cool system develops later. Thus, the hot system is functioning dominantly during the earliest years of life while the cool system remains largely undeveloped. As the age increases, there is a shift of dominance from the hot system to the cool system. It is argued that the developmental difference of the two systems is consistent with the development of brain structures (Metcalfe & Jacobs, 1996, 1998). The amygdala, which has been showed to be central to the hot system, is functioning at birth (Gaffan, 1992; Ulfig, Setzer, & Bohl, 2003); whereas, the hippocampus and frontal lobe structures that are associated with the cool system continue to develop after birth (Altman & Bayer, 1990; Arnold & Trojanowski, 1996).

The impact of stress on the two systems is different. The hot system can be activated to a very high level by acute stress. The cool system becomes just arousal instead of stress at low stress levels, but it becomes dysfunctional when the stress level increases (Metcalfe & Mischel, 1999). In a situation of continuing high stress, the hot system will be left to dominate processing. The hot system is a “quick and dirty” process,

and therefore, the dominance of the hot system in a highly stressful situation gives an evolutionary advantage to the species (LeDoux & Phelps, 2008). In addition, there are individual differences in dominance of the hot/cool system. For example, endogenous conditions, innate predispositions, physiological conditions, and diseases can impact selectively on the functioning of the cool or the hot system (Metcalfe & Mischel, 1999).

Interaction between the Hot System and the Cool System

Besides all these differences, the hot and cool systems also interact with each other (Metcalfe & Mischel, 1999). The subsets of internal nodes in the hot and cool systems are called hot spots and cool nodes. The hot spots and cool nodes with the same external referent are directly connected to each other. If a hot spot is activated, the activation may spread to its corresponding cool nodes through the direct links. Similarly, if a cool node is activated, the hot spots connected to this cool node may be activated and the activation may spread to the hot system. As shown in Figure 1.2, which is recreated from Metcalfe and Mischel (1999), input presentations from the left column activate either cool nodes or hot spots, and then the activations spread to corresponding hot spots or cool nodes in the other system, and finally generate outputs.

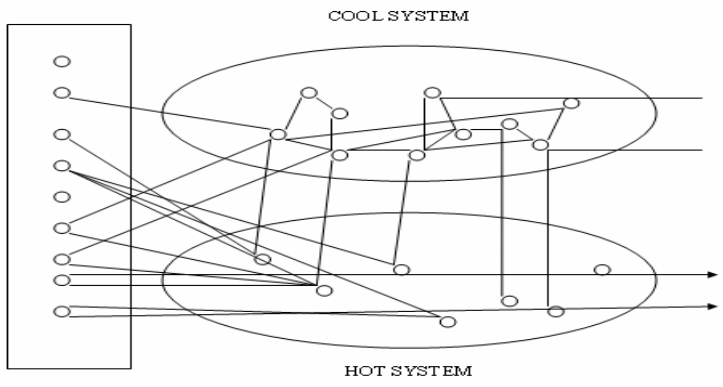

Figure 1.2. An illustration of the interaction of the hot and cool systems.

The interaction between cognition and affect is supported by other research findings. For example, Damasio (1994, 1999, 2003) proposed the somatic marker hypothesis. The main concern of it was the role of emotion in the process of reasoning and decision-making. The author believed that real-life decision making usually involved both emotional and cognitive processes, and the two were not polar opposites but work together. The somatic marker hypothesis focused on such situations in which the cognitive system was overloaded because of high uncertainty and ambiguity. In these cases, somatic markers, which are stored in the hot system with associated physiological affective states, can aid the decision process. This theory suggests that emotion interacts with cognition in typical cognitive functions.

On the other hand, cognition interacts with emotion in typical emotional functions too. LeDoux (2000) described the dynamic of fear in his book chapter. By examining neural interactions, he concluded that cognitive processes such as perception and memory were all involved in the fear system. These research works suggest that the hot and cool systems work interactively in influencing human behaviors.

Research on embodied cognitions by Niedenthal and colleagues (Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005; Niedenthal, Winkielman, Mondillon, & Vermeulen, 2009) also shows that embodied, affective reactions are a central part of cognitions. Indeed, their results showed that through blocking embodied, affective facial reactions by having subjects hold a pen in their mouth, subjects were less able to adequately assess words that pertained to happiness or sadness because the expression of happiness or sadness involved the muscle systems that were blocked.

Anger words were processed more accurately by subjects undergoing this affect-blocking condition because the expression of anger involves muscles around the eyes rather than the mouth.

In short, literature from a wide range of areas (Damasio, 1994, 1999, 2003; LeDoux, 2000; Metcalfe & Mischel, 1999; Niedenthal et al., 2005; Niedenthal et al., 2009) shows the interaction of cognitive and affective systems in responding to social and nonsocial stimuli. Building on this literature, the following sections address the relevance of both the cool and hot systems, and their potential interaction, for understanding the processes responsible for trust in one's leader.

Cool System and Cognition-based Trust Perception

The development of cognition-based trust perception shares some common characteristics with the cool system. Cognition-based trust perception develops and exerts its effect on trust willingness on the basis of character of the leader as revealed by accumulative knowledge about the leader that develops over time. An image of the leader possessing integrity, ability, and benevolence, needs logical deductions from different perspectives (Mayer et al., 1995). Thus, cognition-based trust perception is character-based, and it is about inferences drawn about the leader (Dirks & Ferrin, 2002). From this standpoint, cognition-based trust perception can be classified as knowledge and can be viewed as a part of the cool system, which has been described as a "know" system (Metcalfe & Mischel, 1999).

Second, cognition-based trust perception is formed through a complicated logical deduction process. The cool system also supports complex functions in information

processing (Metcalfe & Mischel, 1999). Third, cognition-based trust perception is built on the deductive processing of trust-relevant information. Thus, it is formed through deliberative thinking. Similarly, the cool system is reflective and based on massive amounts of information input (Metcalfe & Mischel, 1999). Forth, cognition-based trust perception is developed gradually. It is not formed right after entry in the organization. Instead, it is usually developed through a relatively long period when there is enough information to assess trustworthiness of targets. The cool system also develops later in life (Altman & Bayer, 1990; Arnold & Trojanowski, 1996). Finally, the basis of cognition-based trust perception is the perceived character of the leader (McAllister, 1995). Because a person's character is relatively stable over time, cognition-based trust perception is relatively hard to change once formed. Therefore, cognition-based trust perception is stored in memory system and can be used as basis to form trust decisions. Similarly, it has been shown in research that people use the cool system in forming and maintaining social perceptions. For example, it is suggested in attribution theory (Weiner, 1986) that cognitive processes are involved in causal inferences of success and failure. People group the causality into three primary categories: stability, locus, and control. When internal, stable attributions are made, people can use cognitive categories or schemas to guide perceptions, and they are reluctant to change their perceptions (Fiske & Taylor, 2008).

Based on all the above similarities of characteristics and functioning processes between cognition-based trust perception and the cool system, it is reasonable to propose that cognition-based trust perception may be viewed as a critical part of the cool system

functioning when it comes to trust-related information processes. In other words, the path of cognition-based trust perception influencing trust willingness is considered as a part of a cognitive trust process.

Hot System and Relationship-based Trust Perception

Relationship-based trust perception develops through interactions with the leader. Followers also generate affective reactions toward the leader from these interactions. Relationship-based trust perception and these affective reactions together influence the formation of trust willingness decisions. This process is the internal mechanism of affective trust proposed by researchers such as McAllister (1995) and Dirks and Ferrin (2002). Thus, relationship-based trust perception has a close connection with the hot system.

Such a connection is also supported in literatures. In a study exploring the role of affect in relationship-focused leadership processes, Kellett, Humphrey, and Sleeth (2006) found a positive relationship between emotional abilities and relationship leadership. Studies of leader-member exchange (LMX) also revealed this connection between affect and relationship. For example, Liden, Wayne, and Stilwell (1993) found that liking was a strong predictor of LMX. In another study, Maslyn and Uhl-Bien (2001) found that the measurement of LMX (LMX-MDM) included an affective subscale, and the affective subscale score had strong correlations with the other three subscales: contribution, professional respect, and loyalty. This evidence suggests a strong connection between affect and relationship-based trust perception.

Besides the above research findings, relationship-based trust perception and the hot system share lot of similar characteristics and functions. First, relationship-based trust perception is proposed to be more straightforward compared to cognition-based trust perception, and it is triggered by simple behavior stimuli. Likewise, the hot system is triggered by simple stimuli, too (Metcalfe & Mischel, 1999). The best evidence comes from the romantic relationship research. Researchers studied the phenomenon of love at first sight (Barelds & Barelds-Dijkstra, 2007). It was found that people who fell in love at first sight moved into an intimate relationship more quickly. This result suggests that relationship-based trust perception can develop through simple interactions and in a short period. Similar evidence also comes from a friendship study (Sunnafrank & Ramirez, 2004). In this study, students reported reactions to randomly assigned classmates after a brief conversation on the first day and reported their relationship with the classmates nine weeks later. Researchers found that the first time response predicted the relationship after nine weeks. These research findings illustrate that relationship-based trust perception can be formed very quickly through simple interactions and influences later behavioral decisions. This characteristic of relationship-based trust perception is a significant mark of hot emotions.

Second, relationship-based trust perception is proposed to develop automatically with minimal effort. The hot system is reflexive as well (Metcalfe & Mischel, 1999). Both of them need no deliberative thinking processes. Third, relationship-based trust perception is proposed to change temporarily. Research showed that both emotional stress (Lines, Selart, Espedal, & Johansen, 2005) and criticism (Earley, 1986) had a

negative correlation with trust. Thus, relationship-based trust perception can be high at one moment, and yet decline a second later because of a criticism and the emotional stress related to it. Similarly, the hot system involves a fast process and becomes unstable in response to environmental changes.

Fourth, relationship-based trust perception is proposed to develop right after the entry to the organization. Relationship building was found to happen early after entering the organization (Liden et al., 1993). Researchers investigated newly hired employees and their direct supervisors and found that the expectations of each other after the first five days of working together predicted the leader-member exchanges at six months. This result parallels the finding of Sunnafrank and Ramirez (2004)'s study that students' impressions of each other after first day interactions predicted their relationship after nine weeks. Both findings suggest that relationship perception builds very early in a dyad and this early relationship is predictive of future relationship qualities. The hot system is also known to develop early in life (Gaffan, 1992; Ulfig, Setzer, & Bohl, 2003). Finally, relationship-based trust perception is proposed to be influenced by contextual factors. As mentioned above, contextual factors such as criticism or compliment impact relationship-based trust perception a lot. Similarly, the hot system is stimulus controlled (Metcalfe & Mischel, 1999).

Because of the above similarities between relationship-based trust perception and the hot system, I propose that the relationship-based trust perception can be viewed as a part of the hot system functions when it comes to the trust-related processes. Supporting this proposition, a recent European study reported that emotional regulation was a

prominent facet of leader-follower relationships (Glaso & Einarsen, 2008). It was found that both leaders and followers performed a large amount of negative affect suppression and positive affect faking/expression actions to maintain their relationships. This finding suggests a close connection between relationship-based trust perception and the hot emotion.

An Advanced Framework of Trust Process

Because the cognition-based trust perception and the relationship-based trust perception have close connections with the cool cognition system and the hot emotion system, respectively, an advanced framework of trust process is developed based on the basic framework of trust process in Figure 1.1. It is proposed that cognitive reaction, as a direct cool cognitive process, works closely with cognition-based trust perception influencing trust willingness, and this process forms the cognitive trust process. Cognition-based trust perception and cognitive reaction are cognitive trust determinants. It is also proposed that affective reaction, as a direct hot affective process, works closely with relationship-based trust perception influencing trust willingness, and this process forms the affective trust process. Relationship-based trust perception and affective reaction are affective trust determinants. Moreover, because the hot and cool systems are interactive with each other, it is propose that cognitive reaction and affective reaction interactively influence trust willingness. These propositions are shown in Figure 1.3.

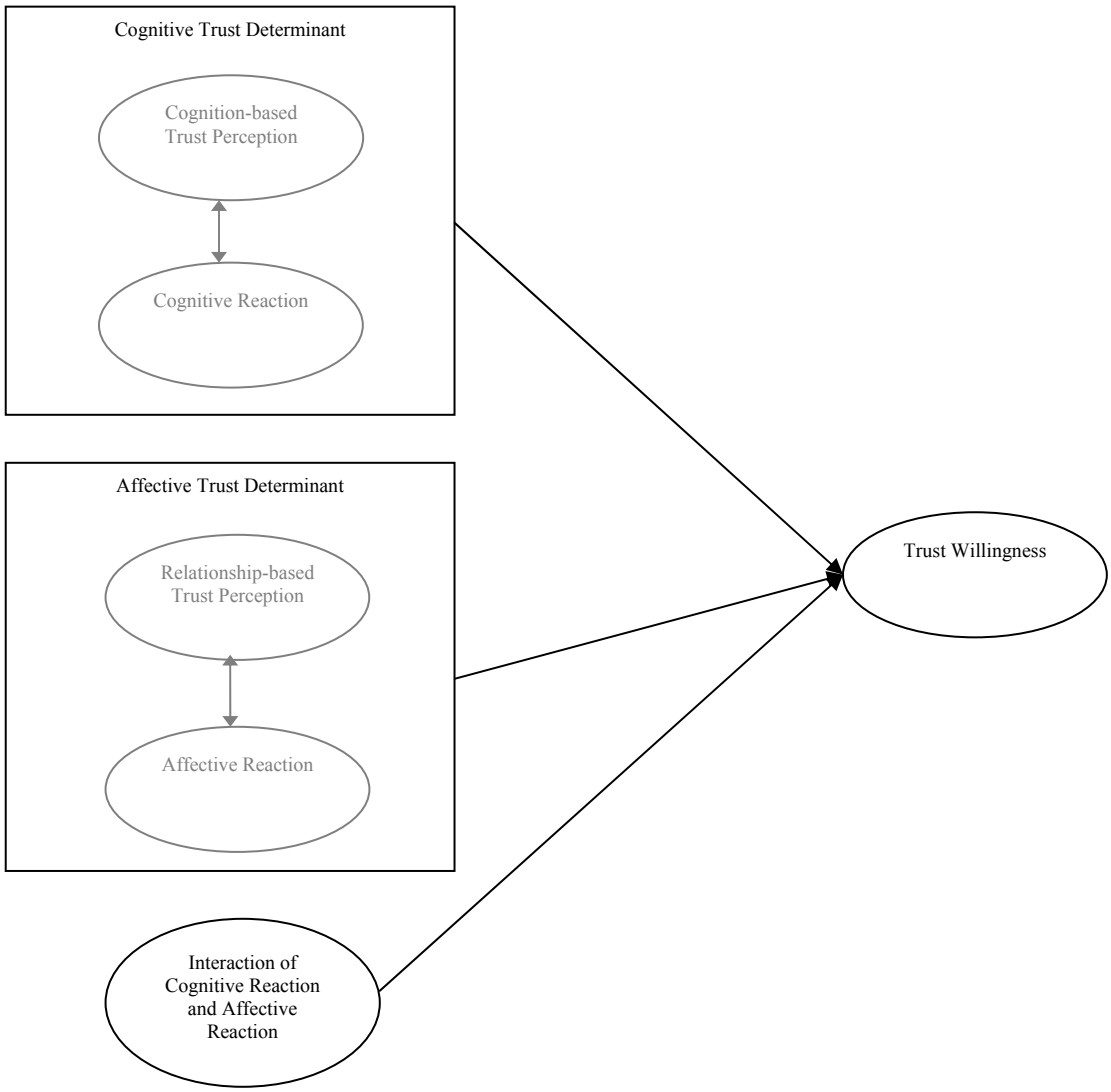

Figure 1.3. An advanced framework of cognitive and affective trust process.

Semantic/Episodic Memory and Trust Process

The cognition-based trust perception of the cognitive trust process and the relationship-based trust perception of the affective trust process have parallels with the human memory systems: semantic memory and episodic memory. Semantic memory

stores knowledge that is independent of context. Episodic memory, in contrast, stores context-dependent information (Tulving, 1972). Characteristics of a leader that take an abstract form independent of contexts are likely a part of semantic memory; whereas, interactions with a leader evolving in specific situations are likely a part of episodic memory (Tulving, 1985). Therefore, it is likely that cognition-based trust perception has a close connection with semantic memory, whereas relationship-based trust perception has a close connection with episodic memory.

The following section presents an introduction of the two memory systems and an in-depth discussion of the connections between the cognition-based and relationship-based trust perception and the two memory systems.

Semantic/Episodic Memory

Tulving (1972, 1983) made an influential distinction regarding memory -- semantic and episodic memory -- that still guides current thinking (Baddeley, Aggleton, & Conway, 2002). *Semantic memory* stores all of our knowledge but does not maintain information regarding how, when, or where the knowledge is obtained; whereas, *episodic memory* encodes and stores information about autobiographical experiences. Operationally, semantic memory is accessed when subjects are only aware of the prior occurrence of an item without recollecting when and where its occurrence happens. In contrast, episodic memory is accessed when subjects are able to bring back to mind some recollection of what occurred at the time the item was encoded (Tulving, 1985). The key difference between semantic and episodic memory is that the former is context independent; whereas, the latter is context specific. The contextual information includes

temporal, spatial, and affective inputs from the context. One's location in the context, including relationship with others, is also an aspect of contexts.

Substantial research evidence from different perspectives indicates that the two categories of memories are distinct (Allen, Kaut, & Lord, 2008; Anderson, Morris, Amaral, Bliss, & O'Keefe, 2007; Mitchell, 1989; Starr, Loeffler, Abousleiman, Simonotto, Marshall, Goddard, & Wardlaw, 2005). Cognitive aging research (Allen et al., 2008) has consistently found that older adults showed a more pronounced decline in episodic memory performance than semantic memory performance. Similarly, Mitchell (1989) found significant age deficits for episodic tasks, but not for semantic or procedural tasks. In addition, he found separate factors for episodic and semantic memory, and these were consistent across age. Furthermore, there is neurological evidence supporting the distinction. Different neural systems contributed to separate cognitive functions. For example, the episodic memory system was closely linked with the hippocampus (Anderson et al., 2007). Another study using functional magnetic resonance imaging (fMRI) (Starr et al., 2005) found that episodic and semantic memory tasks activated different brain regions for older healthy subjects and patients with Alzheimer disease.

Research evidence (Allen et al., 2008) shows that the episodic memory system is closely linked with the neural system involved in processing and regulating emotional experiences (i.e., limbic system). It is noted that, in addition to the hippocampus, episodic memory is associated with the amygdala that has been found to be relevant to emotion. In a brain imaging study (Cahill, Haier, Fallon, Alkire, Tang, Keator, Wu, & McGaugh, 1996), it was found that participants recalled significantly more emotional film clips than

neutral film clips. In addition, the activation in right amygdala was correlated significantly with the long-term recall of film clips. It indicated a relationship between episodic memory and the brain structure functioning in emotional processes. Furthermore, mood congruence during encoding and retrieval did facilitate memory performance relative to mood incongruence (Allen et al., 2008). The result supported the somatic marker hypothesis that emotions served as a contextual marker/cue for episodic memory.

The most common evidence linking emotions and episodic memory comes from the phenomenon of flashbulb memories. Flashbulb memories are distinctly vivid, precise, concrete, long-lasting memories of a personal circumstance surrounding a person's discovery of shocking events. An example might be a groom's recall of the bride's face if she rejected him during the wedding ceremony. Past research showed that the emotional intensity of the event is an important component of flashbulb memory (Hornstein, Brown, & Mulligan, 2003). The emotional reaction facilitates episodic memory.

Although semantic memory and episodic memory are different in the types of information processed, the two memory systems are not completely functionally independent. The interaction of semantic and episodic memory is supported by cognitive approaches to memory as well as by the analysis of brain networks involved in the retrieval of memory information (Ryan, Hoscheidt, & Nadel, 2008). The differences between semantic and episodic memory retrieval were not the output of two independent memory systems but likely reflected a variation along a continuum of processing when performing tasks. This suggests that the same memory network is engaged across tasks.

Yet, given the characteristics of tasks, the involvement of semantic and episodic memory is different. If a task requires world knowledge and abstract concepts more, the involvement of semantic memory might be more than that of episodic memory, and the process of the task might be located more toward the semantic process end of the continuum. Likewise, the more a task requires spatial-temporal contextual and emotional information, the involvement of episodic memory might be greater than that of semantic memory, and the closer this task might be to the episodic process end of the continuum.

Semantic Memory and Cognition-based Trust Perception

I propose that cognition-based trust perception and relationship-based trust perception are related to these two types of memories. Cognition-based trust perception, as indicative of leader knowledge developed over time, is based primarily on semantic memory system. The abstract knowledge of the leader's characteristics is saved in semantic memory. To form trustworthiness judgments, necessary information is retrieved from semantic memory. With the available information and a logical analysis, followers then develop their assessment of trustworthiness.

As discussed earlier, cognition-based trust perception is relatively stable once formed. It can be viewed as a form of categorization based on a prototype of a trustworthy leader. Lord, Foti, and De Vader (1984) used the term "prototype" to refer to the associated attributes that construct one's image of leader and influence perceptions. The same idea was expressed by Fiske and Taylor (2008) as categorical person perception, which means that people categorize others according to their personalities. In a context of leadership perception, followers categorize their leaders according to their

behavioral characteristics and form good and poor leader prototypes. A high cognition-based trust perception may be based on a match to a good prototype; whereas, a low one reflects a fit with a poor prototype. From this perspective, cognition-based trust perception could be stored and retrieved from semantic memory as a prototype.

Episodic Memory and Relationship-based Trust Perception

Relationship-based trust perception develops through contexts involving follower-leader interactions. Therefore, I propose that it is based primarily on episodic memory. Followers rely on the contextual information stored in episodic memory to recall how they interacted with their leader. It works as an important foundation in the formation of relationship-based trust perception. The organization of episodic memory becomes important to relationship perception. If all the positive events are easily accessible, relationship-based trust perception is high. In contrast, if negative events are easily to retrieve, a low relationship-based trust perception can be expected.

The accessibility and the difficulty of accessibility influence the formation of relationship-based trust perception. The events with easy accessibility usually are those associated with strong emotions. Episodic memory has been found to link to emotional processes (D'Argembeau & Van der Linden, 2004). In this study, the researchers presented emotional and neutral meaning words to subjects and asked them to recall the color and the spatial location of the words. It was found that the memory of color and spatial location was better for emotional words than for neutral words. The color and spatial information of words are retrieved from episodic memory. Therefore, it suggests a connection between emotion and episodic memory. Because I propose earlier that

relationship-based trust perception works closely with the hot system, it is likely that relationship-based trust perception has a strong relationship with episodic memory, particularly when the contexts are emotionally intense.

The Advanced Cognitive and Affective Trust Framework in Different Memory Conditions

As discussed, cognition-based trust perception and relationship-base trust perception tend to be connected with semantic memory and episodic memory, respectively. Although I have introduced the difference between the two memory systems, recent research also suggests that semantic memory and episodic memory are not completely independent memory systems (Ryan et al., 2008). Rather these constructs can be thought of as occurring on a continuum with relatively pure semantic and episodic processes on its two ends, and the middle being a mix of semantic and episodic processes. Therefore, how cognition-based trust perception and relationship-based trust perception influence trust willingness should not be completely separated either. It can be viewed as a continuum, too. When semantic memory is easier to access, trust willingness might be influenced more by cognition-based trust perception. Likewise, when episodic memory is easier to access, trust willingness might be influenced more by relationship-based trust perception.

This mechanism is shown in Figure 1.4. In a pre-activated semantic memory situation, I theorize that the cognitive trust determinant exerts more influence on trust willingness than the affective trust determinant does, because the easily accessible information will be more cognitive than affective. When the context cues the utility of episodic memory, I theorize that the affective trust determinant influences trust

willingness more than the cognitive trust determinant does, because relationship-based information will tend to be stored in episodic memory and will have easier access than cognitive information.

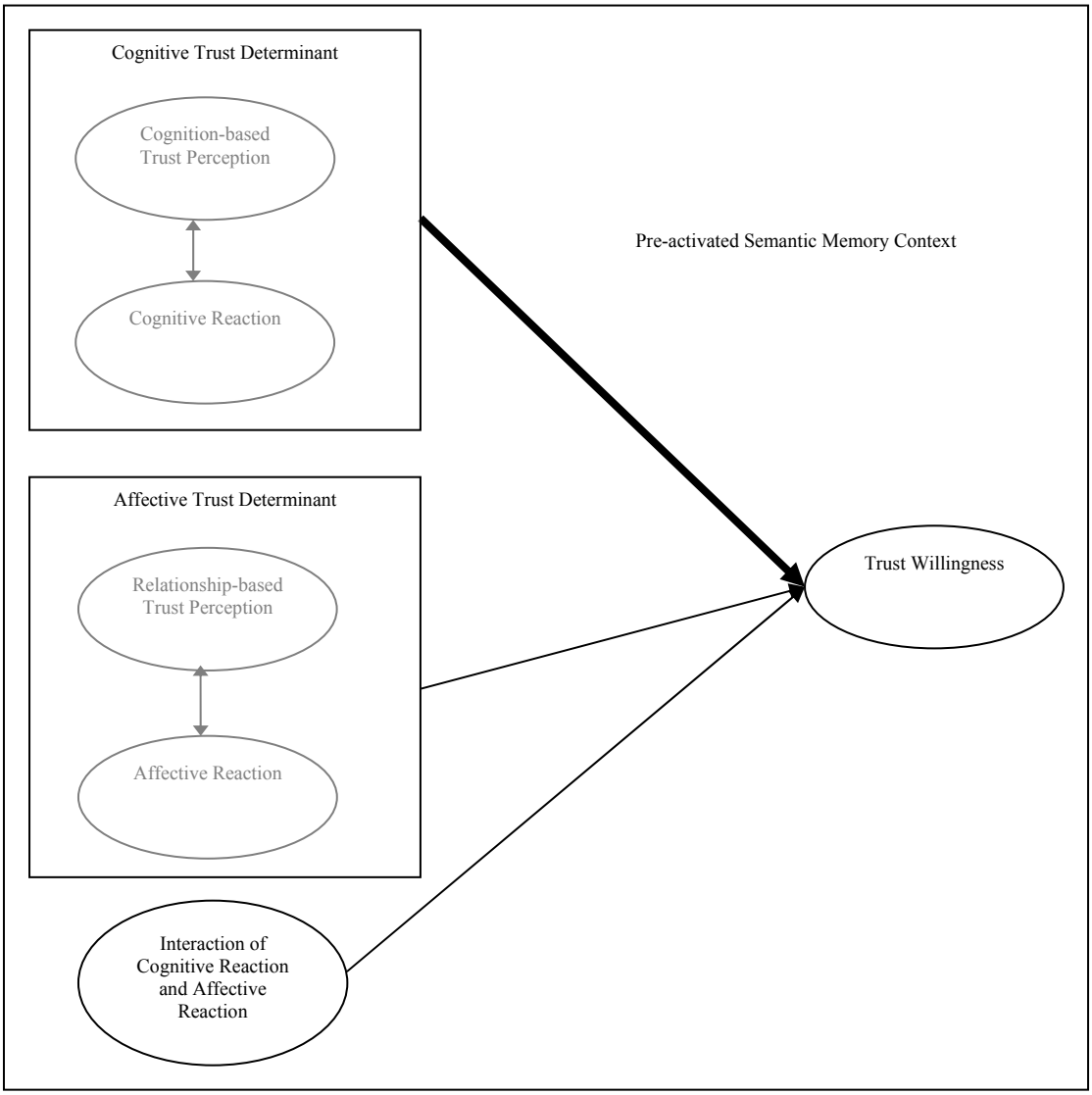

Figure 1.4. The advanced cognitive and affective trust framework in different memory conditions.

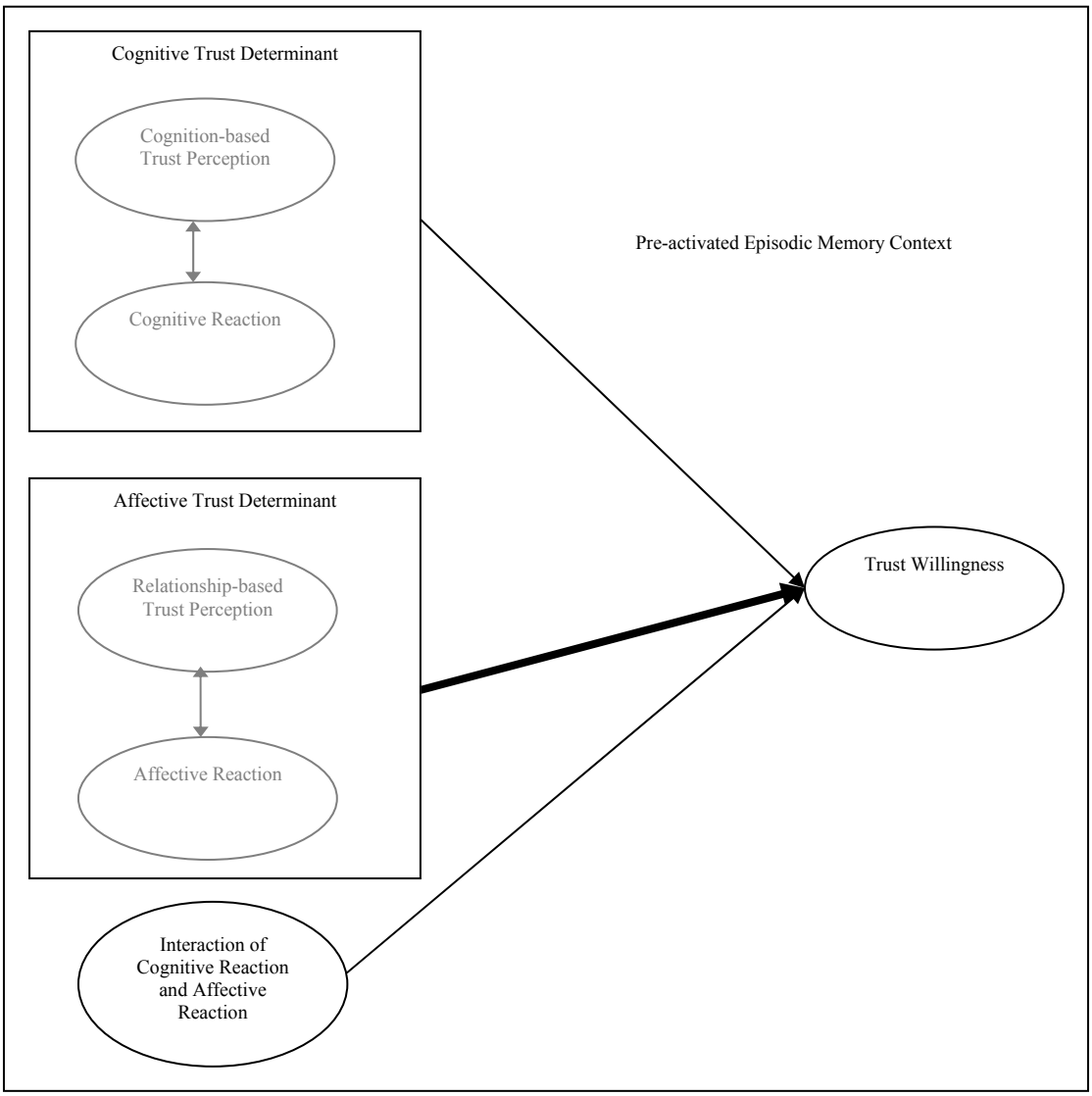

Figure 1.4. The advanced cognitive and affective trust framework in different memory conditions (continued).

Semantic/Episodic Memory and Hot/Cool System

In this proposal, I linked cognition-based and relationship-based trust perception to the hot/cool systems and the different memory systems. Therefore, it suggests that there may be some overlaps between the hot/cool systems and semantic/episodic memory

systems. This can be illustrated from a neural network perspective. As discussed, there are hot spots in the hot system and cool nodes in the cool system (Metcalfe & Mischel, 1999). Based on the different types of information processed by the memory systems (Tulving, 1972), there are abstract nodes in semantic memory and there are perceptual nodes in episodic memory. Moreover, research suggested that episodic memory has close links to emotion (Allen et al., 2008; D'Argembeau & Van der Linden, 2004). Thus, there are emotional nodes in episodic memory, too. These nodes and spots connect to each other through links. The strengths of links are different among nodes and spots. All these nodes, spots and links form the neural network. Overlaps are reflected through patterns of spreading activation. Because the hot spots are emotional, the links between the hot spots and the emotional nodes are strong. The activation of emotional nodes in episodic memory could easily spread to the hot spots and the hot system becomes activated. This is how the overlap between the hot system and episodic memory may occur.

On the other hand, the overlap between the cool system and semantic memory is not as salient as that between the hot system and episodic memory. Memory is usually described as a cognitive process (LeDoux, 2000). Therefore, the retrievals of abstract knowledge-based information from semantic memory and of detailed contextual information from episodic memory are both a part of a cognitive process. Hence, the links between the cool nodes and the abstract nodes are not necessarily stronger than the links between the cool nodes and the perceptual nodes. The activation of both the perceptual nodes and the abstract nodes may spread to the cool nodes and the cool system becomes activated.

A recent brain imaging study finding may provide some further evidence for this argument (Ryan, Cox, Hayes, & Nadel, 2008). It was found that the hippocampus was activated for both semantic and episodic memory tasks. Because the hippocampus is known as one of the process centers of the cool system (Metcalfe & Jacobs, 1996; 1998), it is reasonable to say that the neural imaging study result suggests that both semantic and episodic memory are a part of the cool process. However, it is very important to remember that the cool process only involves the part of episodic memory excluding the emotional piece that is a hot process. In this neural imaging study, the episodic memory task did not include emotional components.

Leadership Studies and Trust Process

There have been two primary approaches in leadership studies (Lord & Brown, 2004). One approach is a traditional leader-focused perspective. This approach emphasizes the characteristics of leader and neglects the input from follower's side in leadership study. It views leadership more as context independent. Early leadership researchers taking this perspective focused on traits of leaders. More recent researchers focused on both traits and behaviors of leaders and developed various leadership styles such as transactional leadership and transformational leadership (Bass, 1985). The cognition-based trust process parallels this leader-focused approach in that both of them emphasize the character of the leader.

The other approach views leadership from the interaction between the leader and the follower (Graen & Uhl-Bien, 1995; Shamir, Pillai, Bligh, & Uhl-Bien, 2006). It emphasizes the mutual input from both leader and follower's sides. Therefore, this

approach focuses on the dyadic relationship between the leader and the follower. Both the leader and the follower's inputs into the relationship are important in understanding the leadership process. This approach has gained more researchers' interests recently. For example, studies focusing on the leader-member exchange theory represent an emphasis of researchers on leader-follower relationships (Brower, Schoorman, & Tan, 2000). The relationship-based trust process parallels this approach to leadership study by emphasizing the interactions.

As discussed, the two approaches to leadership literature match up with the cognition-based and relationship-based trust processes. The influence of cognition-based trust perception leans more toward the leader-focused perspective because it emphasizes characteristics of the leader, while the influence of relationship-based trust perception has the same emphasis as the relationship-oriented leadership perspective. As a matter of fact, these two approaches are not conflicting with each other. Instead, both of them are irreplaceable pieces in understanding leadership. From this perspective, our framework of trust in leadership is a result of integrating both perspectives into one picture.

The importance of emotion in leadership perception is one of the hot areas in leadership study. For example, Kellett, Humphrey, and Sleeth (2002) proposed a two-route model of leadership perception, in which the display of emotional abilities and mental abilities are the two distinct behavioral routes that influence perceptions of an individual as a leader. They used a college student sample and found that the display of emotional abilities, such as empathy, and the display of mental abilities, such as complex task performance, both influenced people to perceive leadership at roughly equal weights.

More recently, the same researchers (Kellett et al., 2006) did another study in which they explored the role of leader empathy in emergence of task and relations leader. They found that empathy mediated the effect of emotional abilities on relations leadership. Emotional abilities were also found to be unrelated to cognitive abilities or complex task performance. These findings suggested that cognitive path and affective path toward leadership perception were separate.

The emphasis on affect is a salient characteristic of my framework, too. Not only is the development of relationship-based trust perception heavily influenced by affect, but also relationship-based trust perception work closely with affective reaction influencing trust willingness. Moreover, the cognition-based and the relationship-based trust processes toward trust willingness are separated in my framework. It aligns with the leadership perception research findings (Kellett et al., 2002; 2006).

Summary

In summary, the new proposed cognitive and affective trust in leadership framework is well grounded from several areas of literatures: the basic human information processing system including both cognitive and affective channels, the basic human memory structure including semantic memory and episodic memory systems, and the current leadership research that emphasizes an integrative approach of both the leader and the follower as well as the key impact of emotion.

The new trust in leadership framework includes two primary functions: cognitive trust process and affective trust process. In cognitive trust process, cognition-based trust perception works closely with cognitive reaction toward the leader influencing trust

willingness. In affective trust process, relationship-based trust perception works closely with affective reaction toward the leader influencing trust willingness. Additionally, cognitive reaction and affective reaction interactively influence trust willingness. Moreover, the cognitive trust process and affective trust process works differently under different memory conditions. In a pre-activated semantic memory condition, trust willingness is influenced more by the cognitive trust determinant than by the affective trust determinant; whereas, in a pre-activated episodic memory condition, trust willingness is influenced more by the affective trust determinant than by the cognitive trust determinant.

The following chapter starts with a literature review of current trust in leadership theories. A discussion of how the new proposed cognitive and affective trust framework is compatible with all these current theories and how the new framework is an effort to integrate the different trust in leadership models then follows. Next, a series of hypotheses are developed based on the new proposed trust framework. Finally, an empirical study is designed to test the new proposed trust framework, and the results are presented and discussed at the end of this dissertation.

CHAPTER II

LITERATURE REVIEW

The importance of trust in leadership has been broadly recognized in the literature (Mayer, Davis, & Schoorman, 1995; Williams, 2001). These efforts over the last two decades have focused on explaining how trust in leadership is developed and maintained. Although trust has been studied over two decades and has been recognized as one of the most frequently used constructs in the organizational literature (Bunker, Alban, & Lewicki, 2004), the issue of what trust is has not been adequately resolved. Researchers have proposed a variety of models of trust in leadership (Burke, Sims, Lazzara, & Salas, 2007; Dirks & Ferrin, 2002; Mayer et al., 1995; McAllister, 1995). A key distinction among these conceptual models is whether trust should include constructs related to affect and leader-follower relationships. Some models do not incorporate affective and relationship components (Burke et al., 2007; Mayer et al., 1995), while other models divide trust into cognitive and affective processes (Dirks & Ferrin, 2002; McAllister, 1995). I believe that trust in leadership, like lot of other psychological phenomenon, is influenced by both affective and cognitive processes.

The Concept of Trust

A widely accepted definition of trust in leadership was proposed by Mayer et al. (1995). They defined trust as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other party will perform a particular action

important to the trustor, irrespective of the trustor's ability to monitor or control the other party (p. 712)." Trust was clearly defined as a willingness to be vulnerable in this definition. Similar definitions have been given by other researchers. For example, Rousseau, Sitkin, Burt, and Camerer (1998) defined trust as "a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another (p. 395)." Williams (2001) gave a definition as "one's willingness to rely on another's actions in a situation involving the risk of opportunism (p. 378)." In contrast, the other school of researchers viewed trust as perceptions of, or beliefs about trustees. For example, Hall, Blass, Ferris, and Massengale (2004) defined trust as "a belief that individual will not act opportunistically or in a self-serving manner (p. 516)." Lewicki and Bunker (1995) viewed trust as "belief of a congruence of values (p. 315)."

Despite these differing perspectives, most researchers combined the two perspectives and gave a mixed definition for trust. For example, McAllister (1995) defined trust 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 (p. 25)." McKnight, Cummings, and Chervany (1998) recognized two components of trust: one as trusting intention that was "one is willing to depend on the other person in a given situation", and the other as trusting belief that was "one believes the other person is benevolent, competent, honest, or predictable in a situation (p. 474)." In a three-facet proposition of trust provided by Whitener, Brodt, Korsgaard, and Werner (1998), trust was defined as "an expectation or belief that the other party will act benevolently", "a willingness to be vulnerable and risk

that the other party may not fulfill the expectations", and "dependency on the other party so that the outcomes of one individual are influenced by the actions of another (p. 513)."

Overall, a definition including both a willingness to be vulnerable and perceptions of another party seems to reflect a complete picture of trust. Therefore, I define trust as *one party is willing to be vulnerable because of their perceptions of the other party*. After clarifying the definition of trust, let's take a moment to review current trust theories in the following section.

Trust Theories

Over last two decades, several trust models were proposed. Among them, Mayer et al. (1995)'s integrative model of organizational trust and McAllister (1995)'s cognition- and affect-based trust categorization are the most influential. Some recent efforts to summarize trust literature are recognized, such as Dirks and Ferrin (2002)'s meta-analysis and Burke, Sims, Lazzara, and Salas (2007)'s integrative model. In the following section, I briefly introduce each of these theoretical models and discuss how my framework is compatible with them.

Cognitive Models of Trust

Mayer's integrative model. The core concept of Mayer et al. (1995)'s trust model is risk taking. They proposed that trust was a willingness to put self into vulnerable situation and to rely on others. The antecedent of trust is perceived trustworthiness of another that includes three components: their *ability*, *benevolence*, and *integrity*. The effect of trustworthiness on trust is moderated by *trust propensity* that is defined as a stable perceiver factor that will affect the likelihood the perceiver will trust.

The three components of trustworthiness are separated but related, yet they are proposed to influence trust differently. The effects of ability and integrity are more salient early prior to the development of trust. In contrast, the effect of benevolence increases over time when the relationship between parties develops. Trust, in turn, affects risk taking in the relationship and this influence is moderated by perceived risk. Risk taking behaviors result in outcomes, and these outcomes work as feedbacks to perceived trustworthiness such that trustworthiness can be adjusted. Therefore, the outcome and the antecedent of trust influence each other as a feedback loop.

Recently Tomlinson and Mayer (2009) refined the model by elaborating how the trust outcomes influence perceived trustworthiness in a trust repair context. In this model, negative outcomes trigger a general emotional displeasure, and one then enters into a cognitive sensemaking process that is based on causal attributions about the source of the negative outcomes. Then, the sensemaking process influences trustworthiness and emotional reactions such as fear and anger. The specific emotional reactions influence trustworthiness and trust willingness.

As a widely accepted trust model, Mayer's model clearly explains how cognitive perception (trustworthiness) of trustees influences trust willingness. Unfortunately, it ignores the role of affect and emotion as a formal part in its original version (Williams, 2001). Although the recent extension (Tomlinson & Mayer, 2009) added the influence of affect to the model, it still failed to illustrate a couple of important issues. First, it ignored the role of relationship-based trust perception in the trust process. Benevolence was included to reflect the relationship perspective. However, the definition of benevolence,

the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive (Mayer et al., 1995), reflects a perceived unidimensional characteristic from a trustee to a trustor. It does not include the perceived investment into the relationship of the trustor. In contrast, relationship-based trust perception is an overall evaluation of what both the trustor and the trustee are perceived to invest into the relationship based on everyday interactions. These perceptions that both parties invested into the relationship are meaningful. Maslyn and Uhl-Bien (2001) found that followers compared the effort from their supervisors with their own effort. A high LMX was reported by the followers only when they perceived the same or higher amount of managerial effort. But if their supervisors' effort was low, a low LMX was reported even through the followers put a high level of effort into the relationship. This illustrates the importance of interactions rather than a one-way relationship.

Second, although the recently added elaboration of the feedback loop by Tomlinson and Mayer (2009) clarified the effect of negative outcomes on trust processes, it had a couple of unsolved issues. The first one is the role of affect. The influence of affect was treated as a part of the peripheral feedback loop. It was influenced by cognitive sensemaking of the outcomes. It did not consider the crucial direct role of affect in the trust process per se. According to Affective Event Theory (Weiss & Cropanzano, 1996), affective reaction can influence one's behavior directly. Therefore, I think affect could directly influence trust willingness. Also, the new addition only considered the influence of negative affect. It ignored the effect of positive affect. As a matter of fact, positive

affect and emotion such as liking have been proven to exert crucial effects on the trust process (Nicholson, Compeau, & Sethi, 2001).

My new trust in leadership framework addresses these limitations of Mayer's model. Within my framework, Mayer's model only partially explains the process of how cognition-based perception influences trust willingness, and it neglects how relationship-based perception influences trust willingness. Yet, his theory is compatible with the cognitive trust process of my framework.

Burke's multi-level framework. Burke et al. (2007) provided a recent integration of the trust literature, and they proposed an expanded model of trust in leadership. Their model was theoretically based on the Mayer's framework. Burke and his colleagues categorized organizational variables into the three components of trustworthiness. For example, setting compelling direction and creation of enabling structure were viewed as ability. Three leadership styles, transformational, consultative, and transactional leadership, were categorized into benevolence. Accountability, perceptions of justice, and value congruence were categorized as integrity. In addition to the propensity to trust, they proposed that several moderators influenced the relationship between trustee characteristics and trust in leadership. They included individual level factors such as trustees' reputation and predisposition of trustors, team factors such as psychological safety, and organizational factors such as organizational climate. The outcomes of trust in leadership were divided into proximal outcomes and distal outcomes. Proximal outcomes included behavior outcomes such as communication, learning, and extra-role behaviors

and affect outcomes such as willingness to follow. Distal outcomes included performance quality, performance quantity, turnover, adaptation, and trust.

This model was focused on antecedents, moderators, and outcomes of trust in leadership. It had significant value in understanding what influences trust and what trust influences. However, it has the same problem as Mayer's model, which is neglecting the affective process in trust development. As previously noted, Dirks and Ferrin (2002) suggested that different antecedents and outcomes may relate to different perspectives on trust. Therefore, Burke's model underemphasized the part of organizational antecedents and outcomes related to the affective trust process.

My framework can be compatible with the antecedents and outcomes proposed in Burke's model. Moreover, by adding the missing piece of the affective trust process, it highlights the possibility to study more antecedents and outcomes related to relationship-based trust perception. Therefore, above and beyond the three organizational variable groups Burke et al. (2007) proposed, there is a fourth group which includes relationship-focused antecedents and outcomes.

Trust Models Emphasizing Both Cognitive and Affective Processes

McAllister (1995) conceptualized trust development as a discrete process involving two qualitatively different types of trust: cognition-based and affect-based trust. The former was developed based on available knowledge and "good reasons" constituting evidences of trustworthiness. The latter developed through foundations consisting of emotional bonds between individuals. People made emotional investments in trust relationships, showed concern and care for welfare of others, believed in the true

virtue of relationships, and believed that the sentiments were reciprocal. These emotional links ultimately provided an additional basis for trust.

McAllister also proposed that affect-based trust was deeper (or "less superficial and more special") than cognition-based trust. Cognition-based trust and affect-based trust were considered to have different antecedents as well as different outcomes. In addition, McAllister believed that cognition-based trust and affect-based trust interacted with each other. It was proposed that some level of cognition-based trust may be prerequisites for affect-based trust to develop, yet a foundation of cognition-based trust may no longer be necessary once a high level of affect-based trust has developed. This argument is consistent with literature reviewed previously that show and interaction between the hot and cool systems (Metcalfe & Mischel, 1999) and with the research documenting the interaction of cognitions and affect by Damasio (1994, 2003) and LeDoux (2000).

McAllister measured trust with an "overall trust" type of scale. It did not separate trust perception from trust willingness. However, trust is indeed a process within which related but separate constructs are functioning (Ferrin, Bligh, & Kohles, 2008). Therefore, the two concepts, willingness and perception, need to be measured separately and treated as different variables in the trust process. That is, trust willingness is based upon trust perception. If the distinction is not made clearly, confusions may appear as a result. For instance, in their meta-analytic review of antecedents and consequences of trust, Colquitt, Scott, and LePine (2007) operationalized trust as a single variable but included studies that had operationalized trust as willingness or perception/expectation.

So on the one hand, they appropriately recognized the nature of trust as willingness and perception but on the other hand, it ignored the fact that willingness and perception are conceptually distinct constructs.

Dirks and Ferrin (2002) proposed a trust model that was similar to McAllister's conceptualization. They proposed that trust in leadership should be differentiated into affective trust, cognitive trust, and overall trust. They also differentiated trust in direct leaders from trust in organizational leadership. Results from their meta-analysis suggested that types of trust (affective, cognitive, and overall) and leadership referents (direct leaders and organizational leadership) resulted in systematically different relationships between trust in leadership and its antecedents and outcomes. They found that antecedents related to the basis of the leader-follower relationship and outcomes caused by reciprocation of care and concern with relationship were associated with the affective definition of trust. In contrast, antecedents pertaining to inferences about the character of leader and outcomes caused by confidence in the character of leader were associated with the cognitive definition of trust.

The differentiation between cognitive trust and affective trust has gained recent attentions (Gillespie, 2003; Gillespie & Mann, 2004). One approach considering cognitive and affective trust together shows an interesting set of distinctions (Lewis & Weigert, 1985). A 2 by 2 grid depicted the dynamics of an interpersonal relationship (Webber & Klimoski, 2004) involving different levels of cognitive and affective trust. The combination of low cognitive and affective trust is named "skepticism"; whereas, high cognitive and affective trust yields "commitment". In contrast, the combination of

high cognitive trust but low affective trust is categorized as “calculated risk”; whereas, low cognitive trust and high affective trust is labeled “blind faith”. If we relate the categorization to the beginning part of the proposal where we talked about the 2008 race for the Democratic Party nomination for Presidential, voters for Hillary Clinton probably can be seen as “calculated risk”; whereas, voters for Barack Obama may be viewed as “blind faith” to some extent. The interplay between cognitive and affective trust shows meaningful practical applications.

Trust Theory Summary

To summarize the current trust in leadership literature, there are two main conceptualizations of the trust process. One is represented by Mayer's model. It emphasizes cognitive characteristics of antecedents for trust development and gives less attention to the role of relationship perception and affect. The other is represented by McAllister's conceptualization of cognitive and affective trust. It affirms the importance of affect. But without a differentiation between trust perception and trust willingness, it would be very difficult to explore the internal dynamics of trust development.

Under my proposed new framework, these two models can be integrated into a complete picture. The new framework illustrates the internal mechanism of trust process in which trust perceptions influence trust willingness. Plus, it brings affect into consideration and equally emphasizes the importance of cognition and affect in trust process. In the following section, I develop a set of hypotheses based on the proposed framework.

Hypotheses Development

Based on the proposed trust framework, I operationalized the variables in the trust framework and developed a model (Figure 2.1). The model focuses on the trust of followers in their direct supervisors. The relationship between cognition-based trust perception and trust willingness was suggested in Mayer's model. Trustworthiness was proposed to be positively related to trust willingness. The relationship was supported by prior research findings (Burke, et al., 2007; Colquitt et al., 2007). Therefore, It is hypothesized that:

Hypothesis 1. There will be a positive association between cognition-based trust perception and trust willingness.

The connection between relationship-based trust perception and trust willingness remains an unexplored area (Dirks & Ferrin, 2002). One important reason for lacking research evidence is partially due to the trust categorization made by McAllister (1995). He did not differentiate trust perception and trust willingness in his framework. For other researchers who took his perspective, this limitation made it difficult to explore the internal mechanism of trust formation. From this standpoint, one of the conceptual contributions the current study adds is to open the door to examining the trust formation mechanism from a mixed cognitive and affective process perspective.

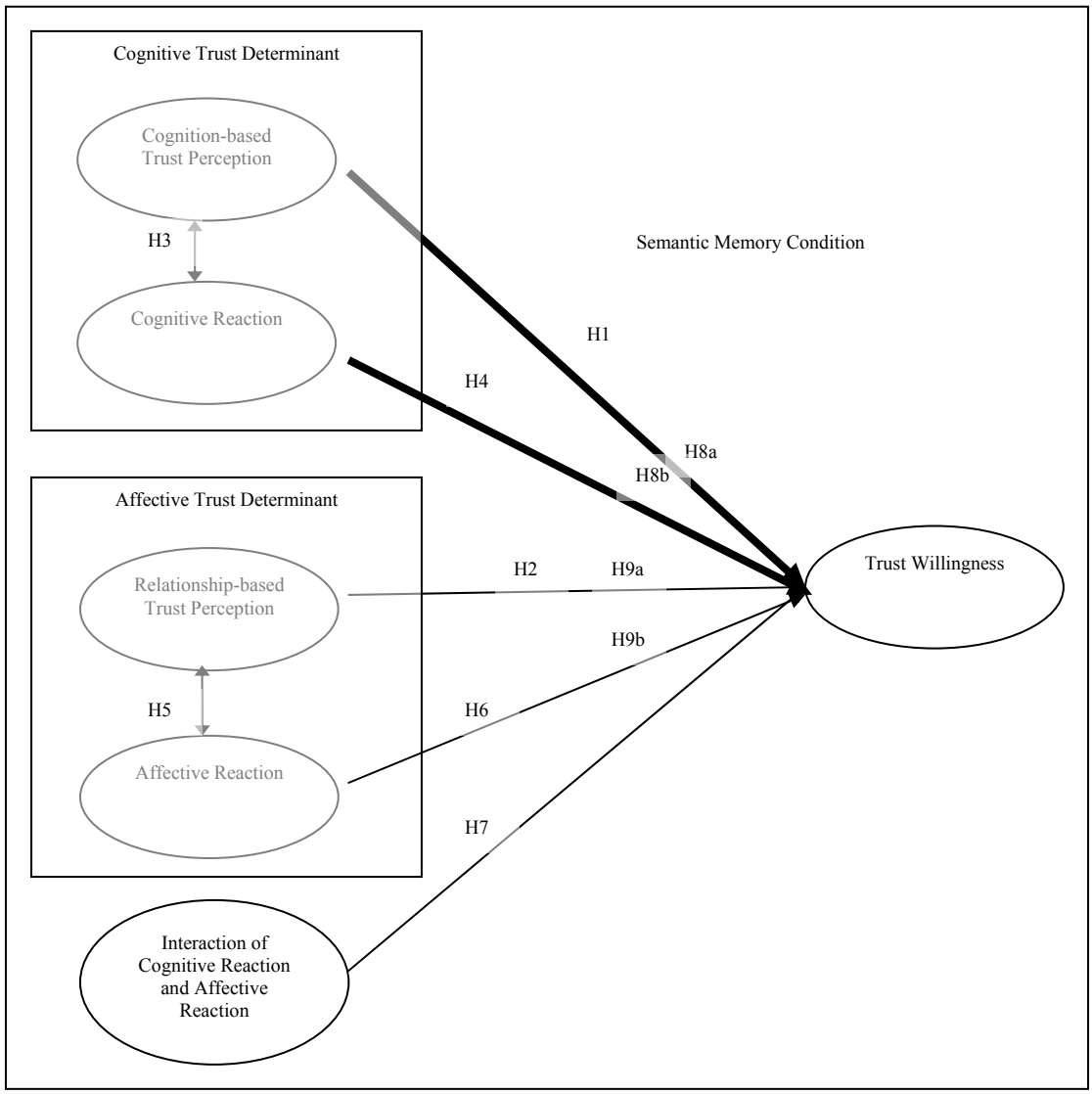

Figure 2.1. The hypothesis testing model of the cognitive and affective trust process.

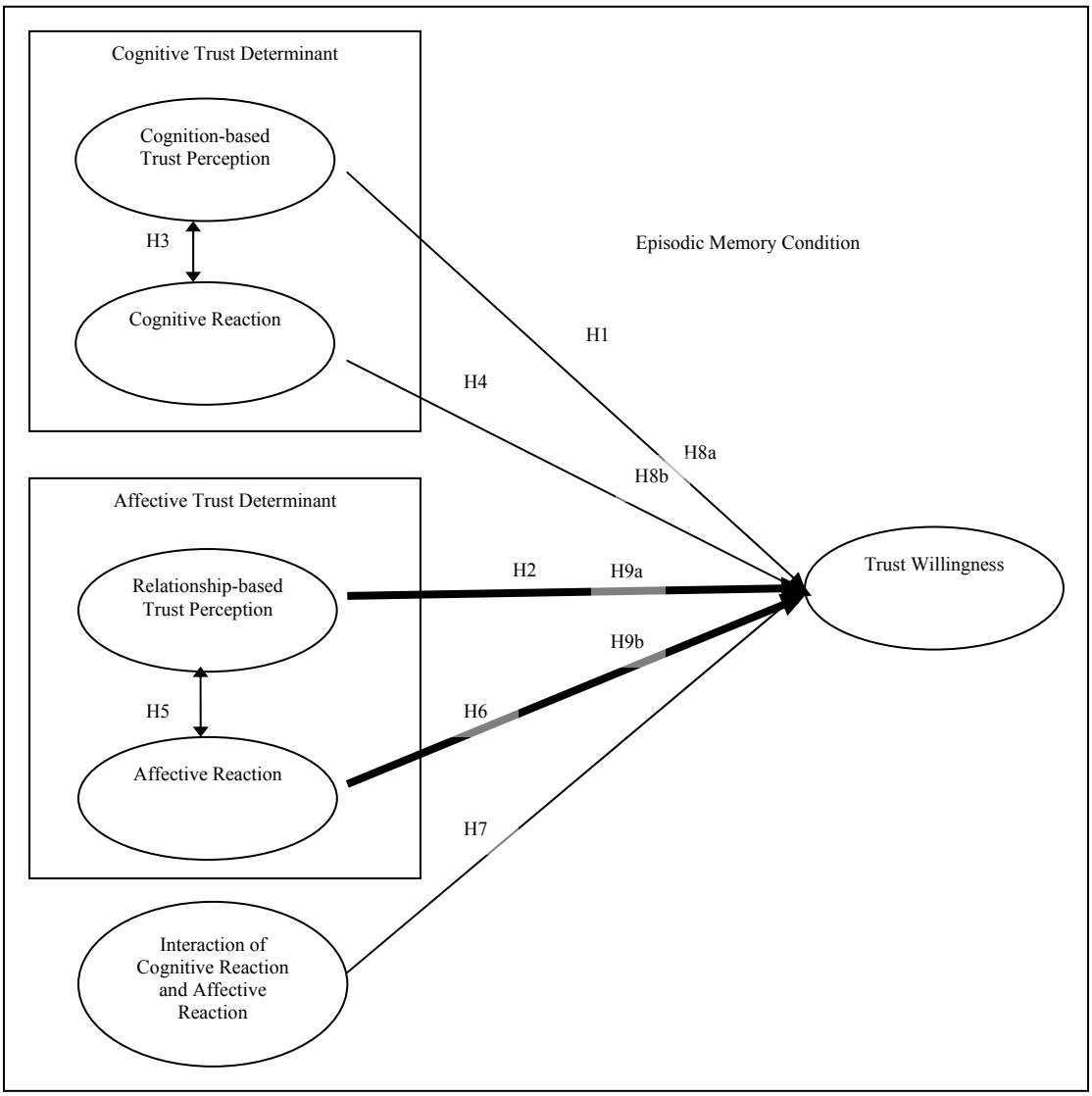

Figure 2.1. The hypothesis testing model of the cognitive and affective trust process (continued).

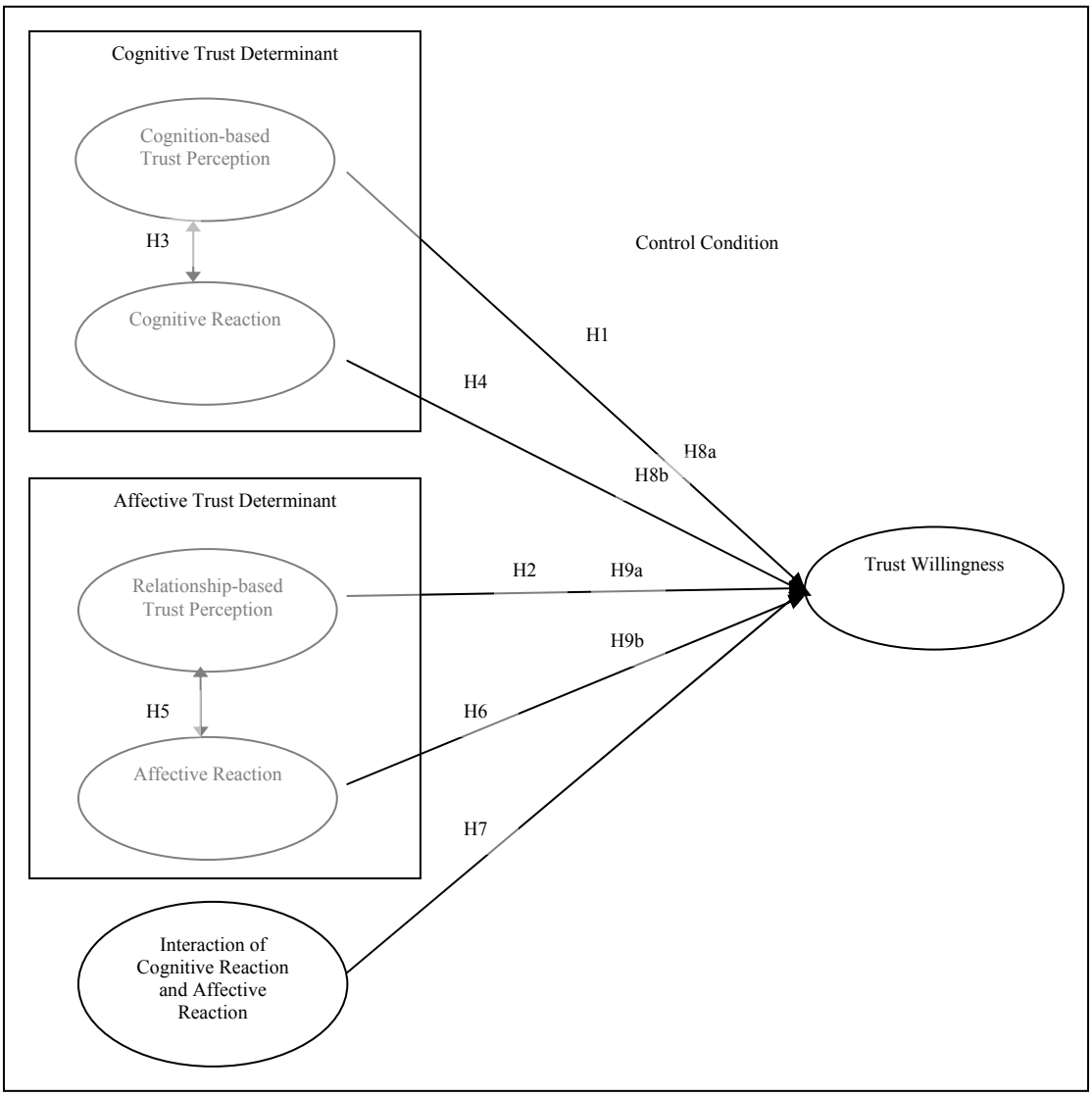

Figure 2.1. The hypothesis testing model of the cognitive and affective trust process (continued).

Although Dirks and Ferrin (2002) did not directly test the association between relationship-based trust perception (affective definition of trust) and trust willingness, they pointed out that one perspective of trust was developed through the leader-follower relationship. Similar opinions can be seen from other researchers describing trust in

leadership as operating through a social exchange process (Konovsky & Pugh, 1994; Whitener et al., 1998). In their meta-analysis, Dirks and Ferrin (2002) tested the correlation between a relationship attribute that was operationalized as the length of relationship, but they did not find significant results. This result suggested that relationship-based trust perception might be more complicated than simply the length of relationship. Rousseau et al. (1998) used relational trust to express similar ideas. They proposed that relational trust derived from repeated interactions over time between trustors and trustees. Information available to the trustors from within the relationship builds up the foundation of relational trust. Based on these research findings, it is hypothesized that:

Hypothesis 2. There will be a positive association between relationship-based trust perception and trust willingness.

As discussed previously, cognition-based trust perception influencing trust willingness represents a part of the cool cognitive process, and it is proposed to work closely with a cognitive reaction of trustees in predicting trust willingness. Followers' *general leadership impression* of their direct supervisors is operationalized as a cognitive reaction. Research suggested that perceived characteristics predicted leadership effectiveness (Foti & Hauenstein, 2007). The researcher took a pattern approach in leadership emergence and leadership effectiveness research. The pattern approach takes very similar view as cognition-based trust perception. It states that people have coherent patterns for organizing perceptions and that they look for these patterns in making sense of others. Thus, from this perspective, followers should perceived consistent patterns of

their direct supervisor's ability, integrity, and benevolence. These consistent patterns are very similar to cognition-based trust perception.

In the same study by Foti and Hauenstein (2007), results also showed that persons scored high in a set of individual difference variables such as intelligence, dominance, self-efficacy, and self-monitoring emerged as leaders, were promoted to leader positions, and were rated high as effective leaders. Similarly, Lord et al. (1984) found that subjects rated the target person high in leadership in the high prototypicality condition. It suggests that the prototypicality of a pattern of leadership behaviors predicts perceived leadership effectiveness. This clustering of individual difference idea is also parallel with Mayer's proposition of trustworthiness. Therefore, it is hypothesized that:

Hypothesis 3. There will be a positive association between general leadership impression and cognition-based trust perception.

Hypothesis 4. There will be a positive association between general leadership impression and trust willingness.

Based on the new framework, relationship-based trust perception influencing trust willingness represents a part of the hot affective process, and it works closely with affective reaction toward trustees. I use *liking* as the operationalization of affective reaction in the test model. Liking has been proven to have a close relationship with trust process in the trust literature. For example, in Nicholson, Compeau, and Sethi (2001)'s study, liking was found to fully mediate the influence of frequency of personal interaction on trust. The frequency of personal interaction was viewed as an indicator of relationship quality. Liden et al. (1993) also found that liking predicted the LMX. Similar results were

obtained from Engle and Lord (1997), too. Liking was found to mediate the relationship between perceived attitudinal similarity and LMX quality. These results suggest that liking reflects an important aspect of leader-member relationships. Therefore, I make the following hypotheses:

Hypothesis 5. There will be a positive association between liking and relationship-based trust perception.

Hypothesis 6. There will be a positive association between liking and trust willingness.

Based on the new framework, cognitive reaction and affective reaction interactively influence trust willingness. Therefore, it is hypothesized that:

Hypothesis 7. General leadership impression and liking interactively influence trust willingness.

The process of cognition-based and relationship-based trust perception have been mapped onto semantic memory and episodic memory. Therefore, a preceding cue that triggers different memory systems could shift the weight of the two routes influencing trust willingness. In this study, there are two experimental groups and a control group. In the semantic memory condition, participants receive a semantic memory related exercise before they take the survey. In the episodic memory condition, participants receive an episodic memory related exercise before taking the survey. In the control condition, participants receive no exercise before taking the survey. Different weight patterns of the test model across the three groups are expected to be observed.

In the semantic memory condition, participants are cued to use their semantic memory system to make trust willingness decisions. Under such a circumstance, trust willingness is expected to be influenced more by the cognitive trust determinants which are cognition-based trust perception and general leadership impression. In contrast, the participants in the episodic memory condition are not cued to use their semantic memory system but rather their episodic memory system. Under such a circumstance, trust willingness is expected to be influenced less by the cognitive trust determinants. Finally, in the control condition, the participants are not cued to use either memory systems. Therefore, trust willingness is expected to be influence by cognitive and affective determinants equally. Therefore, it is hypothesized that:

Hypothesis 8a. The path weight between cognition-based trust perception and trust willingness will be different across experimental conditions. It will be the largest in the semantic memory condition. It will be the smallest in the episodic memory condition. It will be in the middle in the control condition.

Hypothesis 8b. The path weight between general leadership impression and trust willingness will be different across experimental conditions. It will be the largest in the semantic memory condition. It will be the smallest in the episodic memory condition. It will be in the middle in the control condition.

In the episodic memory condition, participants are cued to use their episodic memory system to retrieve information and make trust willingness decisions. Under such a circumstance, the affective trust determinants which are relationship-based trust perception and liking are expected to exert more impact on trust willingness. In contrast,

the participants in the semantic memory condition are not cued to use their episodic memory system but their semantic memory system. Under such a circumstance, trust willingness is expected to be influenced less by the affective trust determinants. Finally, in the control condition, the participants are not cued to use either memory systems. Therefore, trust willingness is expected to be influence by cognitive and affective determinants equally. Therefore, it is hypothesized that:

Hypothesis 9a. The path weight between relationship-based trust perception and trust willingness will be different across experimental conditions. It will be the largest in the episodic memory condition. It will be the smallest in the semantic memory condition. It will be in the middle in the control condition.

Hypothesis 9b. The path weight between liking and trust willingness will be different across experimental conditions. It will be the largest in the episodic memory condition. It will be the smallest in the semantic memory condition. It will be in the middle in the control condition.

Exploratory Analyses

Cognition-based trust perception and relationship-based trust perception represent different functions in trust process. The function of cognition-based trust perception is a part of the cognitive trust process, while the function of relationship-based trust perception is a part of the affective trust process. In their recent meta-analysis, Dirks and Ferrin (2002) suggested that cognitive trust and affective trust may have different antecedents and outcomes. Therefore, I think cognition-based trust perception and relationship-based trust perception should be predicted by different organizational

antecedents and should predict different organizational outcomes. In the following section, an exploratory analysis is presented that is focused on these antecedents and outcomes.

Cognition-focused and Relationship-focused Organizational Antecedents

Organizational justice. Organizational justice is a widely accepted factor that has been found to influence trust in leadership (Ambrose & Schminke, 2003; Greenberg, 1990; Greenberg, 2003; Schminke, 1990). According to Cropanzano, Bowen, and Gilliland (2007), *organizational justice* is a personal evaluation about the ethical and moral standing of managerial conducts. Research has shown that organizational justice can be divided into three types of justice: distributive justice, procedural justice, and interactional justice. *Distributive justice* refers to an employee's perceived fairness of outcomes (Greenburg & Colquitt, 2005). It is concerned with whether the allocation of outcomes is differentiated in the workplace. *Procedural justice* refers to the means by which outcomes are allocated, but not specific to the outcomes themselves (Cropanzano et al., 2007). *Interactional justice* refers to how one person treats another (Cropanzano et al., 2007). A person is perceived to be interactionally just if he/she appropriately shares information and provides polite and respectful manners. More recently, interactional justice was differentiated into two aspects: *informational justice* and *interpersonal justice* (Colquitt, Conlon, Wesson, Porter, & Ng, 2001). The former is defined as whether one is truthful and provides adequate justifications when things go badly. The latter refers to the respect and dignity with which one treats another.

The relationship between organizational justice and trust in leadership has been examined extensively (Ambrose & Schminke, 2003; Colquitt et al., 2001; Erturk, 2007; Hopkins & Weathington, 2006; Kickul, Gundry, & Posig, 2005; Laschinger & Finegan, 2004; Othman, 2008). All three justice types were found to predict trust, and the correlation was reported as high as .60 (Colquitt et al., 2001).

Among the studies focusing on the relationship between organizational justice and trust, none of them differentiated cognition-based and relationship-based trust perception, and thus no evidence of how the two types of trust perception related to different types of organizational justice exists. The narrowness is illustrated by Stinglhamber, De Cremer, and Mercken (2006), "we assessed the cognitive side of trust in the present research" "Because (a) McAllister (1995) showed that cognitive-based trust preceded affect-based trust and (b) Cummings and Bromiley (1996) noted that trust was related to expectations and probability beliefs and was therefore strongly characterized by cognitive factors (p. 446)." Unfortunately, this is not a strong argument to ignore the important distinction between cognition-based trust perception and relationship-based trust perception. On the contrary, as discussed in this dissertation, the distinction has very important theoretical, biological, and practical implications**.**

Although no study directly tested the association between different types of organizational justice and different types of trust perception, some research evidence is relevant. In a study done by Camerman, Cropanzano, and Vandenberghe (2007), the path coefficient from informational justice to trust in the staffing agent was .70 ($p<.01$). In contrast, the coefficient from interpersonal justice to trust in the staffing agent was only -

.02 (p>.05). When looking at the content of the scale used to measure trust in the staffing agent (a typical item: "I trust my staffing agent to make the right decisions in situations that affect me personally"), it is not hard to tell that the measured trust in agent only incorporates cognition-based trust perception but does not include relationship-based trust perception. As a result, it is not difficult to understand why there was no significant association observed between interpersonal justice and trust in agent. It was due to the fact that interpersonal justice likely associates more with the relationship aspects of the trustee.

In another study, Kernan and Hanges (2002) delivered surveys in a major multinational pharmaceutical corporation to explore the antecedents and consequences of procedural, interpersonal, and informational justice. They found that interpersonal justice and informational justice added unique variances to the prediction of trust in management above and beyond procedural justice. This result suggested that interpersonal and informational justice might predict different aspects of trust in leadership beyond aspects explained by procedural justice. The researchers did not further explain this finding in that study. From what have been reviewed, it is possible that procedural justice predicts cognitive aspects of trust perception and the unique variance added by interpersonal and informational justice is relationship-based aspects of trust perception.

Despite the above studies suggesting that distributive and procedural justice were related to cognition-based trust perception, and informational and interpersonal justice were related to relationship-based trust perception, a recent meta-analysis (Barsky & Kaplan, 2007) found some evidences that all types of organizational justice were

associated to both cognitive and affective components. However, it did not exclude the likelihood that some types of organizational justice were more cognition-focused and others were more relationship-focused. Actually, its results suggested that interactional justice may include more affective and relationship-based components relative to distributive and procedural justice. The estimated correlation of interactional justice and state negative affect was saliently larger than that of distributive/procedural justice and state negative affect. Furthermore, interpersonal justice was not differentiated from interactional justice in the study. I believe that interpersonal justice may reflect more relationship-focused characteristics than other types of justice. Therefore, I expect to see a pattern that distributive/procedural justice correlates more and informational/interpersonal justice correlates less with cognition-based trust perception; whereas, informational/interpersonal justice correlates more and distributive/procedural justice correlates less with relationship-based trust perception.

Empathy. Another antecedent which has a close connection to the relationship-based trust process is empathy. *Empathy* was described as "a sharing of positive and negative emotions that promotes a bond between individuals." (Plutchik, 1987, p. 43) It was proposed to play an important role in the development of leadership perception (Kellett, Humphrey, & Sleeth, 2002). More interestingly, a recent study found that a leader's empathy had stronger relationships with relational leadership and the leader's emotional abilities than with task leadership and the leader's cognitive abilities (Kellett, Humphrey, & Sleeth, 2006). It suggests a relationship between empathy and the

relationship-based trust perception. Therefore, empathy could be categorized as a relationship-focused antecedent.

Cognition-focused and Relationship-focused Organizational Outcomes

Organizational commitment. Organizational commitment has been shown an important consequence of trust in leadership (Colquitt, Scott, & LePine, 2007; Kernan & Hanges, 2002; Ruyter, Moorman, & Lemmink, 2001). In commitment-trust theory (Morgan & Hunt, 1994), both commitment and trust are core variables in the model. Furthermore, commitment is recognized as a consequence of trust. Colquitt et al. (2007) found a significant correlation between trust and affective commitment in a meta-analysis. Similarly, there is a .75 correlation coefficient between trust in leadership and organizational commitment found in a field study by Kernan and Hanges (2002). In another study (Ruyter, Moorman, & Lemmink, 2001), trust between customer and supplier was found to influence affective commitment. These research findings suggest that trust in leadership correlates with organizational commitment.

Organizational commitment is generally accepted as a multi-dimensional variable (Allen & Meyer, 1990; Meyer & Herscovitch, 2001). *Affective commitment* is the identification with, involvement in, and emotional attachment to a relationship such as an employee–organization relationship (Allen & Meyer, 1990). Affective commitment makes a person keep a relationship because of favorable attitudes, affect, emotion, and perceptions. The second dimension is *continuance commitment*. Continuance commitment assesses the extent to which employees stay in the organization because they perceive that they have few alternatives outside their organization or that too much of

their life would be disrupted if they decided to leave. Continuance commitment is also referred as calculative commitment in literature (Li, Browne, & Chau, 2006). It reflects the fact that a person recognizes the costs associated with leaving a relationship (Allen & Meyer, 1990) and is thus concerned with a purely cognitive cost/benefit analysis of maintaining a relationship. The last dimension is *normative commitment*, which explains moral obligations, social norms, and one's responsibility to the other party in a relationship (Allen & Meyer, 1990).

Conceptually, I think continuance commitment is a cognition-focused outcome; whereas, affective commitment and normative commitment are relationship-focused outcomes. Continuance commitment reflects a member's perception of the need to maintain a relationship given the significant expected termination or quitting costs associated with leaving. Thus, it is based on a cognitive calculation of costs and benefits. In contrast, affective commitment reflects a member's desires to continue its relationship because it likes the partner and enjoys the partnership. Organizational members experience a sense of loyalty and belongingness in high affective commitment. Normative commitment reflects a member's moral feelings toward the other party in a relationship. Therefore, they are leaning more toward relationship-focused direction. I expect to see a pattern of cognition-based trust perception correlates with continuance commitment more than affective and normative commitment; whereas, relationship-based trust perception correlates with affective and normative commitment more than continuance commitment.

Leader-member exchange. Another salient relationship-focused outcome is leader-member exchange (LMX). LMX theory is concerned with dyadic relationships, assumes that leaders differentiate among subordinates in the establishment of these relationships, and describes a role-making process that leads to the development of the relationships (Graen & Uhl-Bien, 1995). The overlap between trust in leadership and LMX was clearly addressed (Brower et al., 2000). Dirks and Ferrin (2002) listed LMX as an important organizational outcome of trust in leadership. Because of the dyadic nature of LMX theory, I expect to see that relationship-based trust perception correlates with LMX more than cognition-based trust perception does.

CHAPTER III

PILOT STUDY METHOD AND RESULTS

The pilot study was necessary for two reasons. First, the experimental manipulations were designed for participants to access specific memory systems. In the semantic memory condition, participants were cued to retrieve information from semantic memory. In the episodic memory condition, participants were cued to retrieve information from episodic memory. It was important to ensure that the participants retrieved information from the specific memory systems as designed. Second, the experimental manipulation was operationalized through pre-survey memory exercises. How long the effect of the priming exercises continued to be effective needed to be determined. It was important that the effect of the exercise lasts for the duration of the time needed for participants to finish the core part of the trust survey items (i.e., trust willingness, cognition-based trust perception, relationship-based trust perception, general leadership impression, and liking).

Pilot Study Method

Semantic and Episodic Memory Manipulations

Several important characteristics of semantic memory and episodic memory were used to help design the pre-survey exercises. First, Tulving (1983) proposed that episodic memory is a self-knowing process while semantic memory is a more general knowing process. That is, self should be involved in an episodic memory accessing task. For a

semantic memory task, no self involvement is required. Second, Tulving also labeled episodic memory as a remembering process while semantic memory was labeled as a knowing process. This means information stored in episodic memory pertains to specific things that happened in the past, and people need to remember them when asked to retrieve memories. In contrast, information stored in semantic memory is general knowledge. People only know the information, but things such as where and when they learned it and who they learned from are not a part of semantic memory. Instead, this temporal and spatial information is stored in episodic memory. Therefore, an episodic memory task should state instructions including "remember" clearly. This manipulation is also supported by research findings (Gardiner, Ramponi, & Richardson-Klavehn, 1998). It was found that subjects were actually using remember and know responses according to instructions.

Third, episodic memory was proposed to reflect a first-person perspective, while semantic memory was proposed to reflect a third-person perspective (Tulving, 1983). This proposal suggests that in an episodic memory task, instructions asking participants to remember from their own perspective should be employed. In contrast, for a semantic memory task, instructions asking participants to think from an average person's perspective should be used. Fourth, Rajaram (1993) proposed that episodic memory was a perceptual processing activity, while semantic memory was a conceptual processing activity. Therefore, in an episodic memory task, participants should be asked to remember some perceptual details of the context and emotional feelings the participants experienced in the context. In contrast, in a semantic memory task, participants should be

asked to do conceptual tasks that are less concrete but more abstract. Finally, according to Hunsaker and Kesner (2008), the spatial attribute of contexts is an important aspect of episodic memory. Therefore, in an episodic memory task, participants should be asked to recall their body position compared to others in the spatial contexts.

Following these guidelines, two pre-survey memory exercises were developed to activate semantic memory and episodic memory. In the *Semantic Memory Condition*, participants were asked to list five characteristics of a person who would be a good leader in the organization for which the participants worked. Then they were asked to list five characteristics of a person who would be a poor leader in the participants' organization. These characteristics of a good or poor leader in the organization involve general knowledge about a leader and thus are categorized as information stored in semantic memory. By accessing the information from semantic memory before taking the survey, participants were expected to continue to access semantic memory to respond to the survey items because semantic information should be more available and be easier to use.

In the *Episodic Memory Condition*, participants were asked to recall a specific, memorable face-to-face interaction with their direct supervisor in their organization. After that, they were asked to answer a set of questions about the recalled interaction. These questions were: When did this interaction happen? Where did this interaction happen? Were you or your supervisor standing or seated? Was he/she in front, beside, or behind you? What was the purpose of this interaction? What was your supervisor's mood? (angry, happy, neutral, etc.) What was your mood? How did you feel about the interaction? (satisfied, not satisfied, etc.) What kind of clothes did their supervisor wear

on that day? What kind of clothes did you wear? They recalled interaction contextual information and thus, memory should be categorized as information stored in episodic memory. More importantly, because they were being asked about the perceptual information, spatial information, details about the situation and their emotional feelings in that situation, participants were expected to continue to retrieve information from episodic memory to provide answers to the remaining survey items.

Besides these two manipulated conditions, there was a *Control Condition*. Participants in the control condition did not receive any memory exercises. It was expected that they would use information about equally from semantic memory and episodic memory.

Participants and Procedure

The semantic memory condition and the episodic memory condition, but not the control condition, were included in the pilot study. Participants were asked to respond to statements about their direct supervisors after taking memory exercises. After responding to each item, they were asked to rate the extent they responded to the item based on knowing and based on remembering. It was expected that participants would rate based more on knowing than on remembering in the semantic memory condition; whereas, they would rate based more on remembering than on knowing in the episodic memory condition. An explanation of knowing and remembering was presented to the participants before they started to rate their supervisors. Appendix A contains all the instructions and items of the memory exercises, and the content of the explanation for knowing and remembering.

Participants for the pilot study were recruited from psychology courses at a large Midwestern university in exchange for extra credit toward course grades. During the time of recruitment, the researcher came to the classrooms and passed around a participant sign-on sheet. Students who were employed at that time or had work experience in the past were requested to write down their name and contact e-mail information if they were interested in participating in the study. 82 students signed up for the study. These students' e-mail were typed into a spreadsheet and randomized based on a set of random numbers generated by the Microsoft Excel program. After randomization, the first 41 students were assigned to the semantic memory condition and the second 41 students were assigned to the episodic memory condition. They were contacted through e-mail by the researcher. Six e-mail addresses were invalid. 49 students responded to the researcher's e-mail and participated in the study, resulting in a response rate of 64%. Among them, 26 participants were in the semantic memory condition and 23 participants were in the episodic memory condition. 65% of the participants were employed at the time and 35% of the participants were not employed but had work experience from the past.

There was an online survey link in the contact e-mail sent to participants. Participants were guided to click the link, and then they were redirected to the online survey page. At the online survey page, the participants were first presented an informed consent. Only if they provided consent, they were able to go to the next section. On the next section, information of the participants was collected about their employment status,

the frequency they work per week, and the frequency they see their direct supervisor per week.

On the next section, the participants were guided to perform the memory exercises. In the semantic memory condition, they were asked to list characteristics of a person who would be a good and poor leader in their organization. In the episodic memory condition, they were asked to recall an interaction with their direct supervisor and then to answer a set of questions about that interaction situation. Next, the participants were presented with an explanation of what knowing and remembering meant. After the explanation, example items were presented to the participants to practice before the actual survey items started. They were asked to respond to a statement about their direct supervisor on a five-point Likert scale (*1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, 5 = strongly agree*). Then, they were asked to rate the extent that they made that response about their direct supervisor based on knowing and based on remembering on a six-point Likert scale (*1 = not at all, 2 = at a very low extent, 3 = at a low extent, 4 = at a medium extent, 5 = at a high extent, 6 = at a very high extent*). After the practice item, the participants were presented the actual survey items. There were 26 items in the pilot study. Following each item, the participants were asked to rate the extent they respond to the item based on knowing and based on remembering.

The data were checked carefully by the researcher before analysis. Three individuals were missing large portions of data and appeared to answer in a random manner. Thus, these observations were dropped and all analyses were conducted using

the reduced *N* of 46, among which 25 were in the semantic memory condition and 21 were in the episodic memory condition.

Measures

Twenty-six items were used for the participants to rate their direct supervisor. The number of items in the pilot study was a little more than the number of core trust items in the focal study which was 21 items. Consequently, in the pilot study, I could test whether the effect of the experimental manipulation would last long enough to cover all the core trust items. If it were shown that the effect lasted through the 26 pilot items, it should then cover the duration of the 21 items in the focal study.

The ratings of these 26 items were not the focus of the pilot study. The ratings of knowing and remembering following each item were the key part of the pilot study. Therefore, a mix of items that were used in the focal study and items that were not used in the focal study was employed to form the 26 items. Appendix B contains all of the items used in the pilot study, including instructions, content, and rating scales.

MLQ. 16 Items from Multifactor Leadership Questionnaire (MLQ, Bass & Avolio, 1990) were used for the pilot study items. Because this measure is copyrighted, it is not included in Appendix B. The MLQ measures transactional and transformational leadership. There were four dimensions for both transactional leadership and four dimensions for transformational leadership. The four dimensions for transactional leadership were: contingent reward I (promise), contingent reward II (rewards), passive management-by-exception, and active management-by-exception. The four dimensions for transformational leadership were charismatic leadership, inspirational leadership,

individualized consideration, and intellectual stimulation. Two items from each dimension were selected to form a total of 16 items that were used for the pilot study. An example item is "I got what I want when I worked as agreed with him/her." The participants used a five-point Likert scale (*1 = strongly disagree, 5 = strongly agree*) to respond to the items.

Cognition-based trust perception. The measurement of cognition-based trust perception was assessed using a revised version of cognition-based trust measurement developed by McAllister (1995). The measurement consisted of five items. Respondents indicated on a scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) their agreement with various statements about their direct supervisors. The Cronbach's alpha for the cognition-based trust measurement was .91. An example item is "My direct supervisor approaches his/her job with professionalism and dedication."

Relationship-based trust perception. Relationship-based trust perception was assessed using a revised version of affect-based trust measurement developed by McAllister (1995). The measurement consisted of five items. Respondents indicated on a scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) their agreement with various statements about their direct supervisors. The Cronbach's alpha for affect-based trust measurement was .89. An example item is "We have a sharing relationship. We can both freely share our ideas, feelings, and hopes."

Pilot Study Results

Effectiveness of Manipulation

There were 26 items in the pilot study. Following each item, the participants were asked to rate the extent they responded to the item about their direct supervisor based on knowing and based on remembering. Therefore, there were 26 knowing ratings and 26 remembering ratings. An average knowing rating and an average remembering rating were computed.

The average knowing and remembering ratings were compared across the two memory conditions. It was expected that participants would rate their direct supervisor based on knowing more than based on remembering in the semantic memory condition; whereas, they would rate their direct supervisor based on remembering more than based on knowing in the episodic memory condition. The knowing ratings and the remembering ratings were made by the same participant. Thus, a repeated-measure ANOVA with memory condition (semantic vs. episodic) being the between-subject variable and the rating type (knowing vs. remembering) being the within-subject variable was conducted. A significant interaction effect between condition and rating type was found, $F(1,44)=7.994$, $p<.01$. The effect size of this interaction was $\eta^2=0.152$. The interaction effect is illustrated in Figure 3.1. The dependent variable was the average knowing and remembering ratings. The interaction showed that in the semantic memory condition, the participants rated their supervisor based more on knowing than they did based on remembering; whereas, in the episodic memory condition, the participants rated their supervisor based more on remembering than they did based on knowing. This result suggested that the semantic memory exercise and the episodic memory exercise were

effective, inducing the participants to retrieve information from semantic memory and episodic memory, respectively.

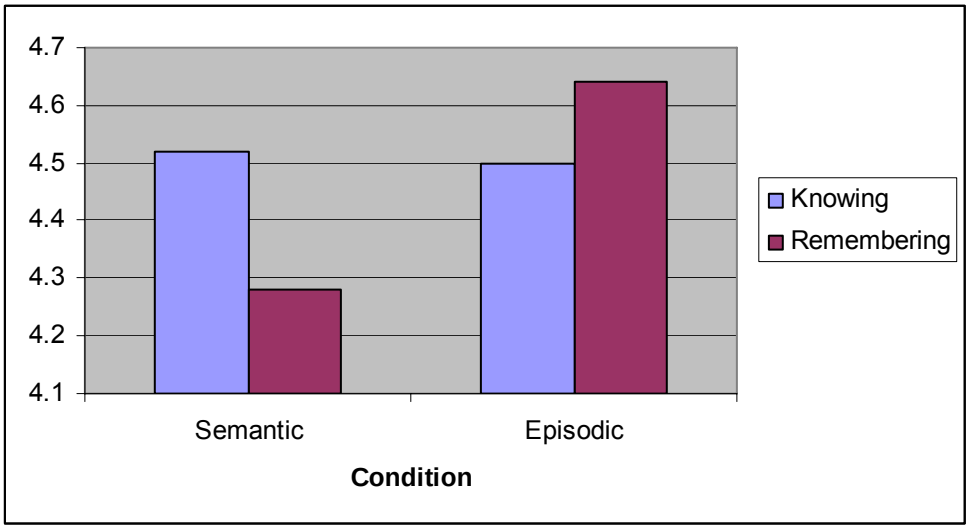

Figure 3.1. The interaction effect between memory condition and rating type.

Durability Over Time of Manipulation

One concern pertaining to this memory manipulation was that the effects of the memory exercises may weaken as the participants complete the survey. One way to deal with this challenge is to present the critical trust items before the items used for the exploratory analysis in the focal study. Even so, I still needed to make sure that the effects of the memory exercises lasted until the participants finish the critical trust items. The critical trust items included items of trust willingness, cognition-based trust perception, relationship-based trust perception, general leadership impression, and liking. There were 21 items total from these scales. There were 26 items in the pilot study. If the effects of the memory exercises could be shown to last the duration of the presentation of the 26 items in the pilot study, it would be reasonable to conclude that the effects of the

memory exercises also could last the duration of the presentation of the 21 critical trust items in the focal study. Therefore, I used the pilot study data to test whether the effect of the memory exercises could last for all the 26 items.

Specifically, I checked whether the order of the items interacted with the memory conditions on the knowing and remembering ratings. If there was an interaction, it would mean that the items presented at different time have different knowing and remembering rating trends across conditions. That could indicate that the effects of memory exercises faded away before participants finished all the 26 items. If there was no interaction, it would mean that the items presented at different time had the same knowing and remembering rating trends across conditions. That would suggest that the effects of memory exercises held during the 26 item period.

I checked the 26 knowing and remembering rating plot across conditions by order. As seen in Figure 3.2, both the knowing and remembering ratings showed similar patterns across semantic and episodic conditions. This suggested that there was not a clear interaction between the order of items and conditions. Next, to directly test the order effect, I grouped the first six, the middle six, and the last six item ratings together and computed the mean for each group. There were four items in between each group. A repeated-measure ANOVA was conducted to test the order effect. Results showed that there was no significant order effect for knowing ratings, $F(2, 48)=.603$, $p>.05$, or for remembering ratings, $F(2, 48)=.117$, $p>.05$. This suggested that the knowing and remembering ratings did not change because of the order of their presentation. These analyses indicated that the memory exercise effect lasted through the period of

presentation of the 26 items in the pilot study. Thus, in the focal study, for the amount of 21 critical trust items, it is reasonable to expect that the effect of the memory exercises also would last until participants finish these critical trust items.

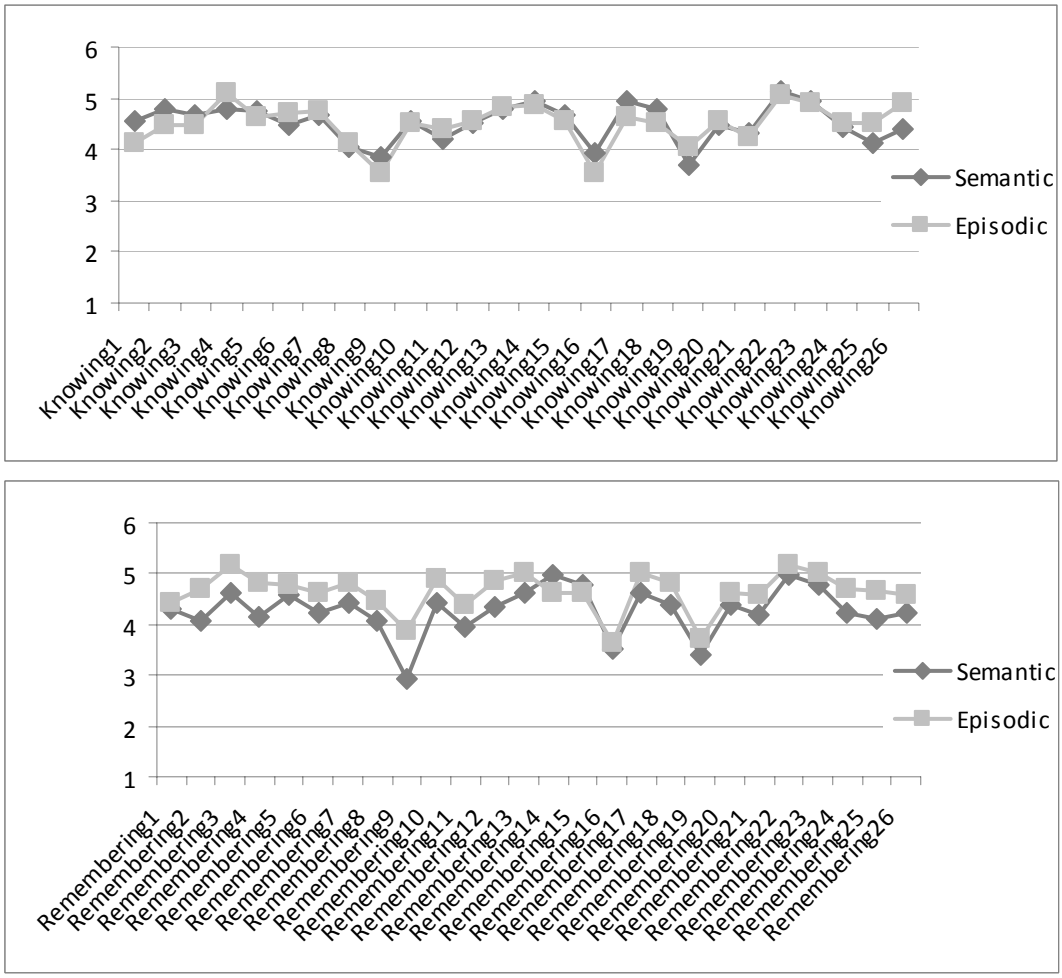

Figure 3.2. Knowing rating and remembering rating plot comparison for semantic and episodic memory conditions.

Summary of Pilot Study Findings

Overall, the findings from the pilot study suggested that the memory exercises as the experimental manipulations were effective. In the semantic memory condition, the participants responded to the survey based more on the information retrieved from semantic memory than based on the information retrieved from the episodic memory. In contrast, in the episodic memory condition, the participants responded to the survey based more on the information retrieved from episodic memory than based on the information retrieved from semantic memory. Also, the effects of the experimental manipulations lasted long enough for the participants to finish the core trust survey items in the focal study. In summary, the findings from the pilot study provided a good foundation for the focal study to employ these experimental manipulations to create effective memory conditions.

CHAPTER IV

FOCAL STUDY METHOD

Participants and Procedures

Participants for the focal study were recruited from psychology courses at a large Midwestern university using procedures similar to the pilot study. During the time of recruitment, the researcher came to the classrooms and passed around a participant sign-on sheet. Students who were employed at that time or had work experience in the past were requested to write down their name and contact e-mail information if they were interested in participating in the study. They were given extra credit towards their course grade for participating.

Seven hundred and ninety students signed up for the study. Registered students were randomly assigned to the three conditions through the following procedure. All the registered students' e-mail addresses were collected during the registration and then were typed into a Microsoft Excel sheet. A set of random numbers were generated with each number being assigned to a student's e-mail address. Then a sort on the random numbers rearranged the order of the participants' e-mail addresses. The first 1/3 of students was assigned to the semantic memory condition. The middle 1/3 of students was assigned to the episodic memory condition. The last 1/3 of students was assigned to the control conditions. After the students were assigned into different conditions, no participant

name or e-mail information other than subject numbers was contained in the file, and no identifying information was kept.

The registered students were contacted through an invitation e-mail sent by the researcher within three days of registration. 542 students responded to this e-mail and participated in the study. The overall response rate was 69%. Some participants took the survey twice. What happened was that they stopped in the middle of the first participation for some reason, and they took the survey again. In such situations, the participants took the memory exercises twice, and responded to some survey items twice. This might lead to an ineffectiveness of the memory exercises and an inaccuracy of the item responses. Thus, the participants who took the survey twice were eliminated from the analysis.

176 students responded to the e-mail and participated in the online survey in the semantic memory condition. Two of them took the survey twice. Eight of them did not finish the whole survey creating a large portion of missing data. Thus, 166 participants were entered into data analysis for the semantic memory condition. 180 students responded to the survey in the episodic memory condition. Two of them took the survey twice. Twelve of them did not finish the whole survey leading to a large portion of missing data. Thus, 166 participants were entered into data analysis for the episodic memory condition. 186 students responded to the survey in the control condition. One of them took the survey twice. Thirteen of them did not finish the whole survey producing a large portion of missing data. Thus, 172 participants were entered into data analysis for the episodic condition. These exclusions led to a reduced sample size of $N = 504$. Among

them, 324 were currently employed (64.3%) and 180 were currently not employed but had work experience in the past (35.7%).

There was an online survey link in the contact e-mail sent to participants. Participants were guided to click the link, and then they were redirected to the online survey page. At the online survey page, the participants were first presented an informed consent page. Only if they agreed to the informed consent were they able to go to the next section. On the next section, information of the participants was collected about their employment status, the frequency they worked per week, and the frequency they saw their direct supervisor per week.

For the next section, the participants were guided to perform the memory exercises. A small change to the semantic memory exercise was made in the focal study. In the episodic memory condition, the participants were asked to recall an interaction with their direct supervisors, but there was no such memory exercise component that incorporated participants' direct supervisor in the semantic memory exercise. To match up with this characteristic of the episodic memory exercise, a new component was added to the semantic memory exercise. After the participants listed five characteristics of a person who would be a good leader in the organization, they were asked to rate their direct supervisor on these five characteristics that they just listed. The same procedure was applied to the five characteristics of a person who would be a poor leader in the organization. A five-point Likert scale was use for rating (*1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, 5 = strongly agree*).

Thus, in the semantic memory condition, the participants were asked to rate their direct supervisor on five characteristics of a person who would be a good (poor) leader in their organization that they listed. In the episodic memory condition, they were asked to recall an interaction with their direct supervisor and then to answer a set of questions about that interaction situation. In the control condition, the participants were not given any memory exercises and moved directly into the next section.

After the memory exercises, the participants were asked to respond to the 21 critical trust survey items about their direct supervisor. When they finished rating these survey items, they were presented an explanation of what knowing and remembering meant. After the explanation, they were asked to rate on a six-point Likert scale (*1 = not at all, 2 = at a very low extent, 3 = at a low extent, 4 = at a medium extent, 5 = at a high extent, 6 = at a very high extent*) the extent they made the responses to the survey items they just finished about their direct supervisor based on knowing and based on remembering. Ratings of knowing and remembering served as a manipulation check for the focal study. The content of the knowing and remembering explanations, as well as the revised memory exercises, is listed in Appendix C.

After ratings of knowing and remembering, the participants were asked to finish another set of survey questions that consisted of 161 items. Once finished, a thank you message was shown in the screen and the participants were notified that the study was over.

Measures

The measures used for the focal study were presented in two parts. The first part contained the measures for the critical trust measures. These measures were trust willingness, cognition-based trust perception, relationship-based trust perception, general leadership impression, and liking. The second part contained the measures for control variables and for variables used in the exploratory analyses. All the instructions, scales, and items of the measures are listed in Appendix D.

Trust willingness. Participants' trust willingness toward their direct leaders was assessed using a revised version of the 4-item measure developed by Schoorman, Mayer, and Davis (1996), scored on 5-point Likert scales. The scale was originally developed to measure trust willingness toward top management and was revised in this study to measure trust willingness toward direct supervisors. One item was dropped because it had a very low factor loading. The dropped item was "I really wish I had a good way to keep an eye on my direct supervisor." An example item is "If I had my way, I wouldn't let my direct supervisor have any influence over issues that are important to me." Items were rated from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). A high score indicates a high level of trust willingness toward the direct supervisors. The Cronbach's Alpha of the scale was .58.

Cognition-based trust perception. The measurement of cognition-based trust perception was assessed using a revised version of cognition-based trust scale developed by McAllister (1995). The measure consists of five items. Respondents indicated on a scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) their agreement with various statements about their direct supervisors. The Cronbach's alpha for the cognition-

based trust measure was .84. An example item is "My direct supervisor approaches his/her job with professionalism and dedication."

Relationship-based trust perception. Relationship-based trust perception was assessed using a revised version of affect-based trust scale developed by McAllister (1995). The measure consists of five items. Respondents indicated on a scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) their agreement with various statements about their direct supervisors. The Cronbach's alpha for affect-based trust measure was .87. An example item is "We have a sharing relationship. We can both freely share our ideas, feelings, and hopes."

General Leadership Impression. A three-item scale was created to measure general leadership impression based on Cronshaw and Lord (1987). . Participants rated on a scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) their agreement with statements about their direct supervisor. An example item is "How effective is my direct supervisor?" The Cronbach's Alpha for the scale was .88.

Liking. A four-item liking scale previously used by Brown and Keeping (2005) was used to assess the degree to which subordinates liked their direct supervisors. An example item is "I think that my direct supervisor would make a good friend." Responses were indicated on a five-point Likert scale from 1 (*Strongly Disagree)* to 5 (*Strongly Agree)*. The Cronbach's Alpha of the scale was .91.

Trust propensity. Trust propensity has been found to have salient influence on trust process (Colquitt, Scott, & LePine, 2007). Therefore, it was used as a covariate to control for impact of individual difference. It was assessed using the eight-item scale

developed by Schoorman, Mayer, and Davis (1996). The measure was rated from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The Cronbach's alpha was .60. An example item is "One should be very cautious with strangers."

Positive/Negative activation. Literature suggested that positive activation (Hui, Wong, & Tjosvold, 2007) and negative activation (Aquino, Grover, Bradfield, & Allen, 1999) could influence trust perception in the workplace. The positive/negative activation scale was used as a covariate to control for individual difference. The Positive Affectivity-Negative Activation Scale (PANAS) (Watson, Clark, & Tellegen, 1988) was used to measure both PA and NA. The scales for PA and NA each included ten items. I wanted to measure trait rather than state affectivity in this study. Participants responded using a five-point Likert scale (1 = *not at all*, 5 = *a lot*). I then averaged items to produce scale scores for NA and PA. The Cronbach's alpha of the affectivity scale was found to be .85 (PA) and .84 (NA).

Affect intensity. Another covariate included was affect intensity. The Affect Intensity Measure (*AIM*; Larsen & Diener, 1985, 1987) was used to measure how intensely participants react to positive or negative emotional events. This scale consists of 40 items. The Cronbach's Alpha of the scale was .87. An example item is "I feel pretty bad when I tell a lie."

Private Body Consciousness. Private body consciousness was included as a covariate. The five-item scale (Miller, Murphy, & Buss, 1981) measures the sensitivity to private embodied reactions. The Cronbach's Alpha of the scale was .58. An example item is "I can often feel my heart beating."

Organizational justice. Organizational justice was assessed using Colquitt's (2001) scale. A five-point Likert scale from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) was used. *Procedural justice* was measured by 7 items. The Cronbach's alpha was .78. An example items is "To what extent, you have been able to express your views and feelings during those procedures used to arrive at your performance rating?" *Distributive justice* was measured by 4 items. The Cronbach's alpha was .88. An example items is "To what extent, your performance rating reflect the effort you have put into your work?" *Interpersonal justice* was measured by 4 items. The Cronbach's alpha was .86. An example items is "To what extent, your direct supervisor treated you in a polite manner." *Informational justice* was measured by 5 items. The Cronbach's alpha was .83. An example items is "To what extent, your direct supervisor has been candid in his/her communications with you."

Empathy. A five-item empathy scale used by Kellett et al. (2006) was used to for subordinates to assess their direct supervisor's empathy. An example item is "He/she values others as individuals." Responses were indicated on a five-point Likert scale from 1 (*Strongly Disagree)* to 5 (*Strongly Agree)*. The Cronbach's Alpha of the scale was .87.

Organizational commitment. Organizational commitment was measured using Allen and Meyer (1990)'s commitment scale. A five-point Likert scale from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) was used. *Affective commitment* was measured by 8 items. The Cronbach's alpha was .82. An example items is "I would be very happy to spend the rest of my career with this organization." *Continuance commitment* was measured by 8 items. The Cronbach's alpha was .73. An example items is "It would be

very hard for me to leave my organization right now, even if I wanted to." *Normative commitment* was measured by 8 items. The Cronbach's alpha was .60. An example items is "I think that people these days move from company to company too often."

LMX. A seven-item scale developed by Graen and Uhl-Bien (1995) was used to measure LMX. An example item is "How would you characterize your working relationship with your direct supervisor?" Responses were indicated on a five-point Likert scale (*1 = strongly disagree, 5 = strongly agree*). The Cronbach's alpha was .91.

CHAPTER V

FOCAL STUDY RESULTS

The focal study sample size was N = 504. Missing data only comprised a very small portion of the full data set. For the core trust measures, data missing rates were: 0.7% for trust willingness, 0.4% for relationship-based trust perception, 0.9% for cognition-based trust perception, 0.3% for liking, and 0.3% for general leadership impression. For control variables, missing rates were: 0.3% for trust propensity, 0.6% for private body consciousness, 0.6% for affect intensity measure, 0% for positive activation, and 0% for negative activation. For variables used in the exploratory analyses, data missing rates were: 0.9% for procedural justice, 0.6% for distributive justice, 0.6% for interpersonal justice, 1.1% for informational justice, 1.2% for empathy, 0.9% for affective commitment, 1.3% for continuance commitment, 1.4% for normative commitment, and 0% for Leader-member exchange. A listwise deletion approach was used to deal with the missing data.

Table 5.1 presents correlation coefficients, means, standard deviations, and coefficient alphas for all study variables. As can be seen from the values in the rows at the bottom of the table, most scale score means tended to be above the scale midpoint. The majority of coefficient alphas were above .80.

Table 5.1. Correlations, Means, and Standard Deviations Among All Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.Condition	-																			
2.Trust Willingness	.03	-																		
3.Relationship-based Trust Perception	.04	.59**	-																	
4.Cognition-based Trust Perception	.02	.53**	.63**	-																
5.Liking	.01	.56**	.82**	.68**	-															
6.General Leadership Impression	.02	.45**	.61**	.72**	.63**	-														
7.Trust Propensity	-.02	.05	-.001	-.03	-.06	-.03	-													
8.Private Body Consciousness	.06	.06	.04	.09*	.07	.02	-.03	-												
9.Affect Intensity Measure	-.01	.11*	.13**	.14**	.15**	.13**	-.15**	.23**	-											
10.Positive Activation	-.02	.13**	.18**	.20**	.18**	.18**	.04	.13**	.20**	-										
11.Negative Activation	-.01	-.07	-.07	-.09*	-.08	-.03	-.15**	.09*	.35**	-.12**	-									
12.Procedural Justice	.04	.31**	.33**	.35**	.33**	.34**	.06	.08	.11*	.22**	-.08	-								
13.Distributive Justice	.07	.23**	.26**	.31**	.31**	.27**	-.07	.11*	.18**	.24**	-.06	.57**	-							
14.Interpersonal Justice	.05	.46**	.64**	.65**	.73**	.58**	-.03	.05	.14**	.17**	-.16**	.41**	.36**	-						
15.Informational Justice	-.02	.44**	.64**	.67**	.67**	.65**	.02	.06	.08	.19**	-.09*	.41**	.36**	.73**	-					
16.Empathy	.04	.50**	.72**	.64**	.73**	.58**	-.04	.07	.15**	.21**	-.10*	.42**	.33**	.77**	.71**	-				
17.Affective Commitment	.03	.43**	.60**	.43**	.54**	.38**	.05	.05	.15**	.19**	-.04	.36**	.29**	.48**	.43**	.53**	-			
18.Continuance Commitment	.05	.11*	.15**	.08	.17**	.12**	-.06	.16**	.16**	-.01	.12**	.02	.09*	.10*	.08	.10*	.28**	-		
19.Normative Commitment	.02	.27**	.34**	.24**	.30**	.25**	-.01	.12**	.15**	.18**	.01	.24**	.17**	.25**	.25**	.26**	.44**	.14**	-	
20.Leader-member Exchange	.06	.55**	.78**	.63**	.76**	.63**	.001	.07	.12**	.30**	-.09	.40**	.37**	.66**	.65**	.70**	.57**	.12**	.31**	-
		TW	RTP	CTP	Liking	GLI	TP	PBC	AIM	PA	NA	PJ	DJ	IntJ	InfJ	Emp	AC	CC	NC	LMX
Mean	-	3.21	3.39	3.81	3.77	3.68	2.55	3.65	3.31	3.47	2.48	3.42	3.84	3.87	3.58	3.51	2.94	3.14	3.01	3.40
SD	-	.73	.94	.80	.90	.86	.46	.55	.37	.61	.64	.56	.73	.82	.75	.84	.75	.67	.48	.85
Alpha		.58	.87	.84	.91	.88	.60	.58	.87	.85	.84	.78	.88	.86	.83	.87	.82	.73	.60	.91
Mean for semantic condition		3.25	3.42	3.82	3.77	3.66	2.54	3.69	3.31	3.47	2.45	3.45	3.91	3.91	3.56	3.54	2.98	3.18	3.02	3.44
Mean for episodic condition		3.23	3.42	3.84	3.78	3.75	2.55	3.65	3.29	3.44	2.51	3.42	3.81	3.89	3.58	3.52	2.92	3.15	3.00	3.47
Mean for control condition		3.16	3.32	3.78	3.75	3.63	2.57	3.60	3.32	3.49	2.47	3.40	3.80	3.81	3.59	3.45	2.93	3.09	2.99	3.31

Note. N=501~504. For condition, 1 = control, 2 = episodic, 3 = semantic. All variables were coded such that high scores indicate more of the construct.
Trust willingness, relationship-based trust perception, cognition-based trust perception, liking, and general leadership impression were latent variables in the test model of trust process.
Other variables were manifest variables in the test model of trust process and in the test model of exploratory analyses.
TW=Trust Willingness, RTP=Relationship-based Trust Perception, CTP=Cognition-based Trust Perception, GLI=General Leadership Perception, TP=Trust Propensity, PBC=Private Body Consciousness, AIM=Affect Intensity Measure, PA=Positive Activation, NA=Negative Activation, PJ=Procedure Justice, DJ=Distributive Justice, IntJ=Interpersonal Justice, InfJ=Informational Justice, Emp=Empathy, AC=Affective Commitment, CC=Continuous Commitment, NC=Normative Commitment, LMX=Leader-member Exchange.
*p < .05. **p < .01

Tests of Correlational Hypotheses

Hypothesis 1 predicted a positive relationship between cognition-based trust perception and trust willingness. A significant positive correlation was found between the two variables ($r = .53$, $p < .01$, $n = 504$). It supported this hypothesis. Hypothesis 2 predicted that there is a positive relationship between relationship-based trust perception and trust willingness. Full support was found for Hypothesis 2, as relationship-based trust perception positively related to trust willingness ($r = .59$, $p < .01$, $n = 504$). Hypothesis 3 predicted that general leadership impression would be positively correlated with cognition-based trust perception. As shown in the correlation matrix, the relationship between general leadership impression and cognition-based trust perception was found to be significantly positive ($r = .72$, $p < .01$, $n = 504$). Thus, Hypothesis 3 was supported. Hypothesis 4 predicted a positive relationship between general leadership impression and trust willingness. Full support was found for Hypothesis 4 with general leadership impression and trust willingness being positively correlated ($r = .45$, $p < .01$, $n = 504$). For Hypothesis 5, liking was predicted to positively correlate with relationship-based trust perception. A positive correlation was found between the two variables, and it supported Hypothesis 5 ($r = .82$, $p < .01$, $n = 504$). Hypothesis 6 predicted that there would be a positive relationship between liking and trust willingness. Full support was found for Hypothesis 6 ($r = .56$, $p < .01$, $n = 504$).

Additionally, I observed that the correlation between general leadership impress and cognition-based trust perception ($r = .72$) was stronger than that between general leadership impression and relationship-based trust perception ($r = .61$). A Fisher's Z test

between the two correlation coefficients was conducted, and the difference was found to be significant ($Z = 3.14$, $p < .01$). Similarly, I also observed that the correlation between liking and relationship-based trust perception ($r = .82$) was stronger than that between liking and cognition-based trust perception ($r = .62$). The result from a Fisher's Z test showed a significant difference between the two correlation coefficients ($Z = 6.83$, $p < .001$). This pattern suggested that general leadership impression worked more closely with cognition-based trust perception; whereas, liking worked more closely with relationship-based trust perception. It supported the concept in the new trust framework that cognition-based trust perception and cognitive reaction worked together, and this process is a cognitive trust process; whereas, relationship-based trust perception and affective reaction work together, and this process is an affective trust process.

Tests of Structural Equation Model Hypotheses

Structural equation modeling was employed to test the remaining hypotheses for the model shown in Figure 2.2. Mplus 4.2 (Muthén & Muthén, 1998-2007), which uses full information maximum likelihood estimation to allow for analysis of data containing missing values, was used to estimate all of the models reported.

Several statistics were used to assess model fit, including the chi-square (χ^2) statistic, the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root-mean-square error of approximation (RMSEA). Lower values of chi-square indicate a better fit and should be nonsignificant, but for large sample sizes, chi-square may lead to rejection of a model with good fit (Schumacker & Lomax, 1998). In addition, models with many variables and degrees of freedom will almost always have significant chi-

square statistic (Rahim & Magner, 1995). Therefore, researchers (Joreskog, 1969) proposed that chi-square should be adjusted by the degrees of freedom to assess model fit. Adjusted chi-square values (χ^2/df) between 1.0 and 5.0 are considered to fall within the level of acceptance (Schumacker & Lomax, 1998). The CFI and TLI are evaluated as indicating good model fit to the data if they equal or exceed .90. RMSEA values below .06 are considered indicative of good fit (Browne & Cudeck, 1989).

Manipulation Check

The participants were asked to rate the extent that the responses they made to the survey items were based on knowing and based on remembering after they finished the 21 critical trust items. The knowing rating and remembering rating served as a manipulation check for the effectiveness of the experimental manipulations. If the experimental manipulations worked well, the participants should report a higher knowing rating and a lower remembering rating in the semantic memory condition. They should also report a lower knowing rating and a higher remembering rating in the episodic memory condition. For the control condition, they should report approximately equal knowing and remembering ratings.

A repeated-measure ANOVA was conducted with the rating type (knowing vs. remembering) being the within-subject factor and the condition being the between-subject factor. The interaction between rating type and condition was not significant, $F(2, 500) = 1.047$, $p > .05$. However, a significant main effect of the within-subject factor was found, $F(1,500) = 6.501$, $p < .05$, $\eta^2 = 0.02$. Tests of within-subject contrasts revealed that for the control condition, the effect of rating type was not significant ($Mean_{knowing} = 4.50$,

$SD_{knowing}$ = .93; $Mean_{remembering}$ = 4.56, $SD_{remembering}$ = 1.02), F(1,171) = .380, p > .05; for the semantic condition, the effect was not significant ($Mean_{knowing}$ = 4.37, $SD_{knowing}$ = 1.01; $Mean_{remembering}$ = 4.49, $SD_{remembering}$ = 1.07), F(1, 165) = 1.206, p > .05; however, for the episodic condition, the effect was significant with a higher mean of the remembering rating than the mean of the knowing rating ($Mean_{knowing}$ = 4.42, $SD_{knowing}$ = .97; $Mean_{remembering}$ = 4.67, $SD_{remembering}$ = .97), F(1, 164) = 8.143, p < .05. This result suggested that the experiment manipulation was effective. Specifically, the participants in the episodic memory condition reported that they responded to the survey items based more on remembering than based on knowing; whereas, the participants in the semantic memory condition and the control condition reported that they responded to the survey items based *equally* on remembering and on knowing.

In short, the memory exercise was more effective in the episodic memory condition than in the semantic memory condition. The reason could be due to the fact that a rating of their direct supervisor was added for the participants to the semantic memory exercise. The new rating component was added so that the semantic memory exercise matched up better with the episodic memory exercise in that they both had a component related to the direct supervisor. However, by adding this new component, it created a potential that the semantic memory exercise might activate both semantic memory and episodic memory for the participants. The results of the manipulation check suggested that the changed procedure did reduce the effectiveness of the semantic memory manipulation.

Structural Equation Models

Measurement model. A measurement model for the hypothesis testing model of the cognitive and affective trust process was evaluated in two steps. First, an exploratory factor analysis (EFA) was performed. Items from the core trust measures entered into the EFA (i.e., trust willingness, relationship-based trust perception, cognition-based trust perception, general leadership impression, and liking). A maximum likelihood extraction with an oblique rotation was selected because it was believed that the latent variables were conceptually correlated to each other (Mayer et al., 1995; McAllister, 1995). Table 5.2 presents the promax rotated loadings of a five-factor solution model and the intercorrelations among the factors. Although there were some cross-loadings, the five factors emerged and most of the factor loadings were between .4 and .9. The five-factor solution model fit the data well: χ^2 (115, N = 468) = 196.170, $p < .001$; root mean square error of approximation (RMSEA) = .039; root mean square residual (RMSR) = .0191.

Table 5.2
A Five-Factor EFA Solution for the Core Trust Measure Items

Item	1 (RTP)	2 (CTP)	3 (GLI)	4 (Liking)	5 (TW)
Trust Willingness Items					
If I had my way, I wouldn't let my direct supervisor have any influence over issues that are important to me.	.26	-.10	.12	.03	**.29**
I would be willing to let my direct supervisor have complete control over my future in this company.	.19	.07	-.09	.07	**.34**
I really wish I had a good way to keep an eye on my direct supervisor.	-.01	.24	.01	.30	**.01**
I would be comfortable giving my direct supervisor a task or problem which was critical to me, even if I could not monitor his/her actions.	.23	.18	-.10	-.08	**.38**
Relationship-based Trust Perception Items					
My direct supervisor and I have a sharing relationship. We can both freely share our ideas, feelings, and hopes.	**.73**	.04	.03	.07	.01

I can take freely to my direct supervisor about difficulties I am having at work and know that he/she will want to listen.	**.47**	-.06	.05	.21	.17
My direct supervisor and I would both feel a sense of loss if one of us was transferred and we could no longer work together.	**.77**	.09	-.05	-.03	.00
If I shared my problems with my direct supervisor, I know he/she would respond constructively and caringly.	**.42**	.01	.11	.19	.21
I would have to say that my direct supervisor and I have both made considerable emotional investments in our working relationship.	**.74**	-.01	.03	-.06	.06
Cognition-based Trust Perception Items					
My direct supervisor approaches his/her job with professionalism and dedication.	-.17	**.38**	.17	.01	**.45**
Based on what I know about my direct supervisor, I see no reason to doubt his/her competency and preparation for the job.	-.10	**.53**	.10	.02	**.34**
I can rely on my direct supervisor not to make my job more difficult by careless work.	.05	**.23**	.02	.18	.21
Most people, even those who aren't close friends of my direct supervisor, trust respect him/her as a coworker.	.12	**.72**	-.03	-.01	.09
Other work associates of mine who must interact with my direct supervisor consider him/her to be trustworthy.	.18	**.72**	.02	-.04	-.01
Liking Items					
I think that my direct supervisor would make a good friend.	**.66**	.12	.01	**.27**	-.13
I like my direct supervisor	**.40**	-.03	.06	**.56**	.06
I get along well with my direct supervisor.	.18	-.06	-.07	**.67**	.27
Working with my direct supervisor is a pleasure.	**.45**	.16	.08	**.44**	-.08
General Leadership Impression Items					
How effective is your direct supervisor?	.07	**.31**	**.48**	.00	.09
To what extent is your direct supervisor typical of a leader?	.01	.03	**.86**	-.01	-.02
To what degree does your direct supervisor fit your image of what a leader should be?	.13	.09	**.72**	.04	.05
RTP	--				
CTP	.52	--			
GLI	.49	.59	--		
Liking	.56	.56	.51	--	
TW	.64	.54	.58	.45	--

Note. N=468. TW=Trust Willingness, RTP=Relationship-based Trust Perception, CTP=Cognition-based Trust Perception, GLI=General Leadership Perception. The primary

factor coefficients are bolded. Any cross-loadings greater than .30 are also bolded.

Some high cross-loadings appeared in the five-factor solution. However, they were conceptually acceptable because it was expected that these latent constructs were highly correlated. Specifically, the cross-loadings for the first factor, relationship-based trust perception, came from three liking items. It is not very surprising because relationship-based trust perception was conceptualized to work closely with liking, and they predicted trust willingness as affective trust determinants. The second factor was cognition-based trust perception. The cross-loading for this factor came from one general leadership impression item. Cognition-based trust perception and general leadership impression were also proposed to work closely to predict trust willingness as cognitive trust determinants. Therefore, this cross-loading makes conceptual sense. The third factor, general leadership impression, and the fourth factor, liking, had cleaner factor loadings than the other factors. There were no high cross loadings for these two factors.

The fifth factor, trust willingness, emerged less clearly compared to the other factors. The factor loadings of its items were generally low. It was acceptable because this was the last factor and the loadings were not as high as the first several sets of factor loadings. However, the third item loading was very low (.01) compared to the other items. This could be due to the fact that this item was reverse coded. But the first item was also reverse coded and its factor loading was not as low as the third item's loading. I compared the content of the third item to the other items. It was observed that the other three items all had a component related to "me". For example, the first item had "…issues that are important to me." The second item had "…control over my future in

the company." The fourth item had "…which was critical to me…." But the third item did no have such a component. It just stated that "…want to keep an eye on my direct supervisor" but did not have a component of "on issues about me/important to me." This was the main reason that this item did not converge with the other items. Deleting the third item slightly increased the Cronbach's alpha (from .57 to .58). Therefore, the third item was dropped from trust willingness.

The cross-loadings for trust willingness came from two cognition-based trust perception items. These two items reflected how confident the participants were in their direct supervisors. Therefore, these two items had cross-leadings with trust willingness that was whether the participants wanted to trust their direct supervisors. Confidence and trust decision may have some conceptual overlaps.

In the second step, this five-factor model was tested using a confirmatory factor analysis (CFA). The first item loading to each factor was constrained to be one in the CFA model. Results showed that the five-factor model fit the data well, χ^2 (160, N = 471) = 417.160, $p < .001$, (χ^2/df= 2.6, CFI = .96, TLI = .95, RMSEA = .06, SRMR = .04). To improve the model, I looked at the model modification indices provided by Mplus in conjunction with theory and content considerations. The modification suggested adding some intercorrelated item disturbance within factors. Specifically, item 3 and item 5 of relationship-based trust perception, item 4 and item 5 of cognition-based trust perception, item 2 and item 3 of general leadership impression, and item 2 and item 3 of liking were suggested. These modifications were conceptually meaningful because each pair of them was used to measure the same construct. Therefore, these modifications were added to

the CFA model. These modifications resulted in significantly better fit for the measurement model ($\Delta\chi^2$ (Δdf = 4, N = 471) = 114.190, p < .01). Figure 5.1 shows the measurement model with these item covariances. The modified model fit the data well, χ^2 (156, N = 471) = 302.970, p < .001, (χ^2/df= 1.9, CFI = .98, TLI = .97, RMSEA = .05, SRMR = .03). Thus, this modified five-factor model with intercorrelated items was employed as the foundation for further path model analysis.

Assessment of common method variance. Because all the data points were collected by the means of self-report, common method variance could become a concern that would inflate the correlations among the trust variables. Therefore, a latent variable approach was employed to estimate the influence of common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In this approach, a single method latent variable was added to the measurement model. All the items were allowed to load on the method factor. The measurement model with the method factor was then compared to the measurement model without the method factor.

Model comparison results showed that model fit was indeed improved by adding the method factor ($\Delta\chi^2$ (Δdf = 20, N = 471) = 72.436, p < .01). However, partitioning of the variance indicated that the method factor only accounted for 1.27% of the total variance. Additionally, the 90% confidence interval for RMSEA of the measurement model with the method factor (.023, .041) overlapped with that of the model without the method factor (.037, .052). Thus, the confirmatory factor analysis results suggested that the common method variance was not a problem in this study.

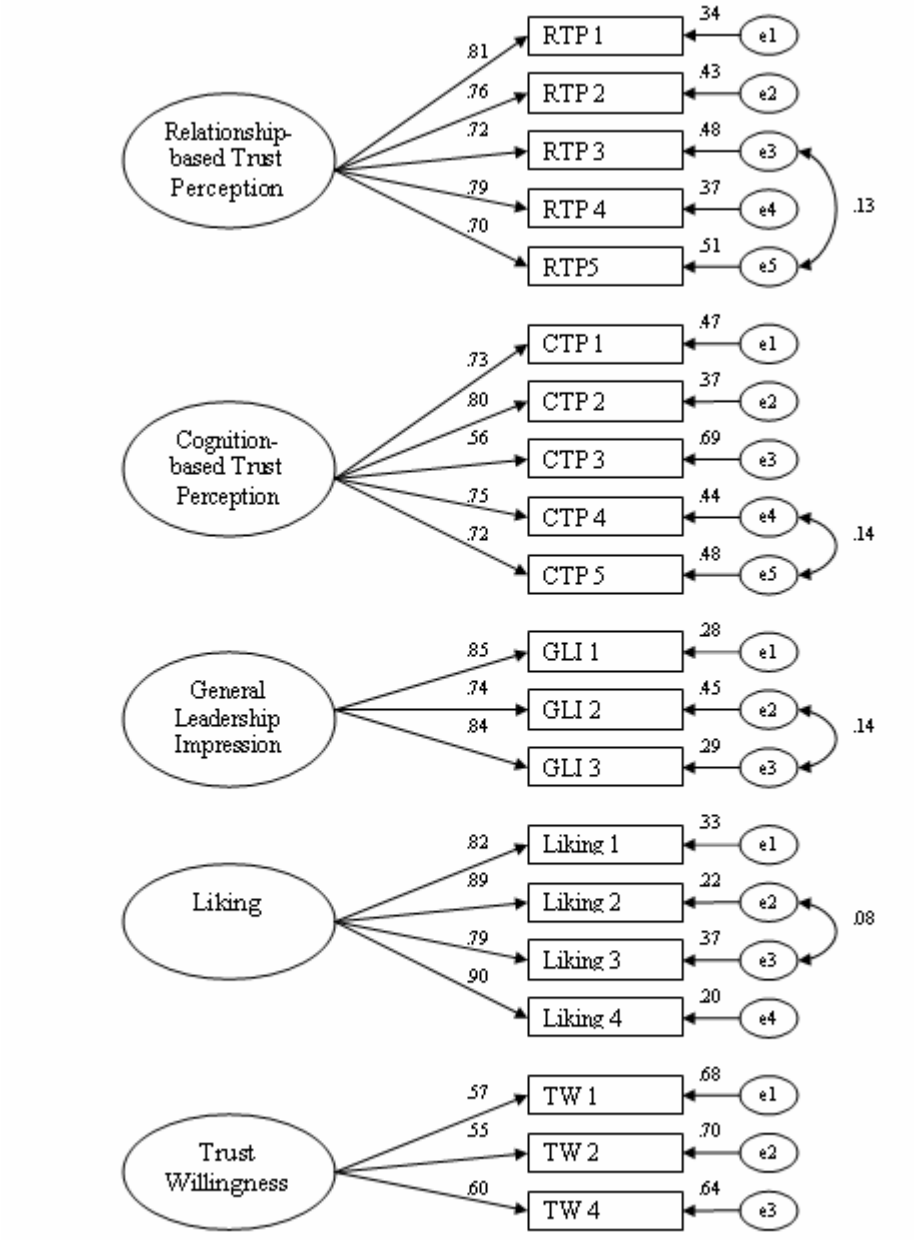

Figure 5.1. Measurement model (χ^2 (156, N = 471) = 302.970, p < .001; χ^2/df= 1.9, CFI = .98, TLI = .97, RMSEA = .05, SRMR = .03)

Structural model. The hypothesized structural model included four paths from the predictors to the dependent variable and an interaction between two predictors, general leadership impression and liking. In order to test this structural model, numerical integration was employed. Numerical integration is a function that models interactions

among latent variables within Mplus (Muthén & Muthén, 1998-2007). Although this technique has the advantage of testing interactions among latent constructs, numerical integration has limitations. Specifically, it cannot calculate the chi-square fit statistic or other familiar fit indices such as CFI, RMSEA and SRMR, or generate standardized path coefficients.

A test of the interaction between general leadership impression and liking on trust willingness using numerical integration indicated that the unstandardized path coefficient for the interaction term was not significant ($b = .07$, $p > .05$). Hypothesis 7 stated that general leadership impression and liking interactively predicted trust willingness. This result indicated no support for Hypothesis 7. In addition, a test of the interaction using regression in SPSS was performed. In the regression test, the scale scores were used. Results confirmed that the interaction between general leadership impression and liking on trust willingness was not significant ($\beta = .05$, $p > .05$).

Although numerical integration cannot calculate the chi-square fit statistic or other familiar fit indices, Akaike (AIC) and Bayesian (BIC) can be calculated. These two indices provide model fit information just as other fit indices. A higher value indicates a poorer model fit. Thus, the model with the interaction term was compared to the model without the interaction term on AIC and BIC. AIC was 21953.169 for the model with the interaction term and 21914.300 for the model without the interaction term. BIC was 22264.784 for the model with the interaction term and 22138.662 for the model without the interaction term. Both fit indices had a smaller value for the model without the interaction term. This result indicated that the model without the interaction term had a

better fit than the model with the interaction term. Accordingly, a modification removing the interaction term was made to the model so that new model fit indices could be obtained to better evaluate the model.

The modified structural model is presented in Figure 5.2. This model was different from the previous hypothesized structural model only in that the interaction term between general leadership impression and liking was removed from the analysis. Overall, the modified structural model had an acceptable fit to the data (χ^2 (156, N = 471) = 302.970, $p < .001$; $\chi^2/df = 1.9$, CFI = .98, TLI = .97, RMSEA = .05, SRMR = .03). The explained variance of the dependent variable (trust willingness) was $R^2 = .797$. Interestingly, the path coefficients between general leadership impression and trust willingness ($\beta = -.09$, $p > .05$) and the path coefficients between liking and trust willingness ($\beta = -.41$, $p > .05$) were not significant. However, both of them were highly positively correlated with trust willingness. There are two possible explanations for the non-significant path coefficients. The first one is that general leadership impression works closely with cognition-based trust perception and liking works closely with relationship-based trust perception to influence trust willingness. Therefore, general leadership impression may share a lot of variance with cognition-based trust perception. Similarly, liking may share a lot of variance with relationship-based trust perception. When they were all put into the same model to predict trust willingness, cognition-based trust perception and relationship-based trust perception drove most of the variance and these two paths were significant. This led to the non-significance of the paths of general leadership impression and liking. This explanation is parallel with the proposed model

conceptually because cognition-based trust perception and general leadership impression were both cognitive trust determinants while relationship-based trust perception and liking were both affective trust determinants. If this explanation is true, second-level constructs should be formed from cognition-based trust perception and general leadership impression, and from relationship-based trust perception and liking, respectively.

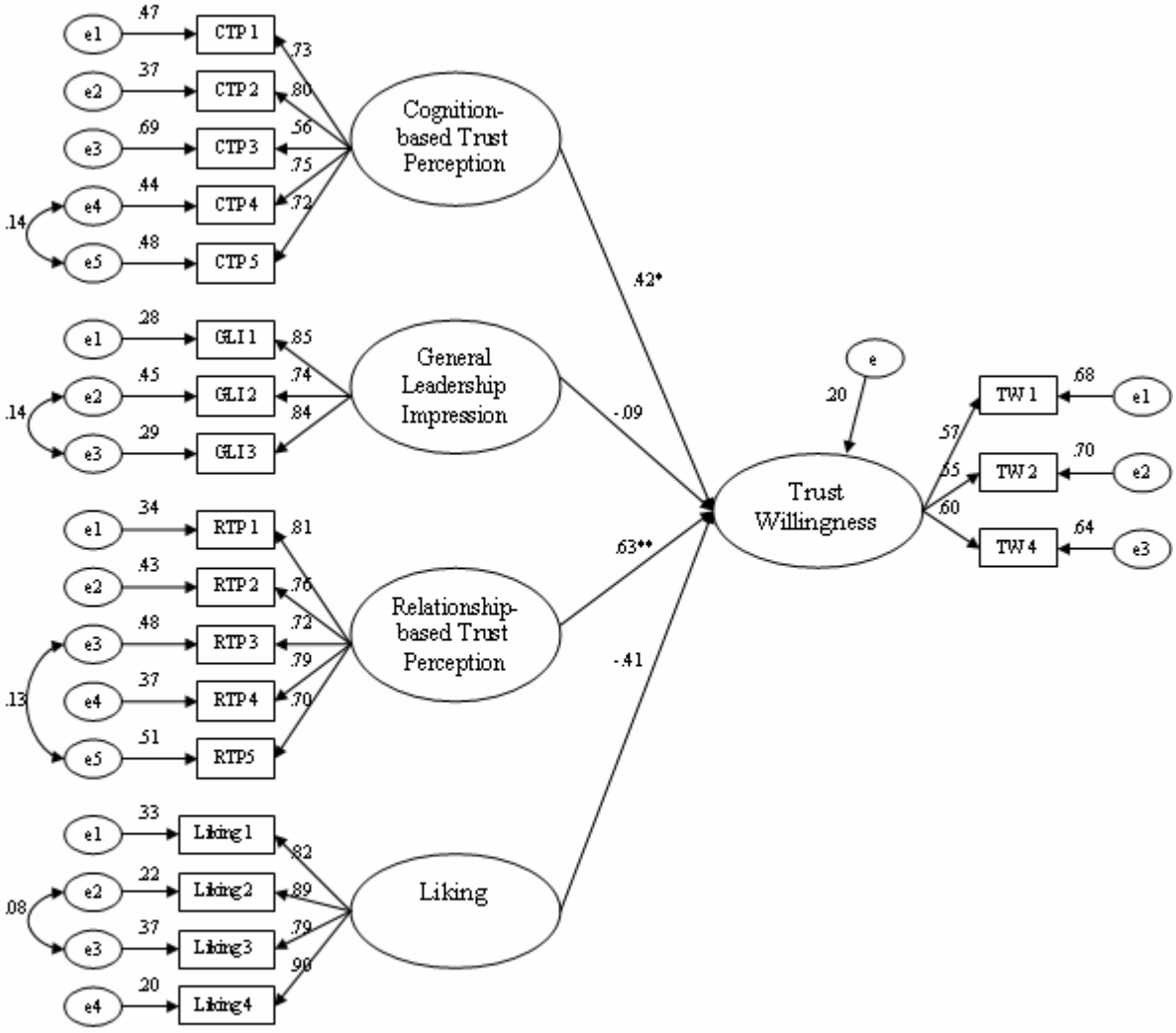

Figure 5.2. Modified structural model
χ^2 (156, N = 471) = 302.970, p < .001; χ^2/df= 1.9, CFI = .98, TLI = .97, RMSEA = .05, SRMR = .03
** p < .01; * p < .05

But before I do that, the second explanation needs to be tested. That is, general leadership impression and liking may share a lot of variance and the non-significance of the two paths is due to their coexistence in the model. To test whether this explanation is true, two models were tested. In the first model, I took out liking and left only general leadership impression with cognition-based trust perception and relationship-based trust perception in the model as predictors. In the second model, I took out general leadership impression and left liking with cognition-based trust perception and relationship-based trust perception in the model as predictors. If the second explanation is true, the general leadership impression path should reach significance in the first test model because the common variance source of liking has been removed. Similarly, the liking path in the second test model should reach significance because the common variance source of general leadership impression has been removed. Results showed that the general leadership impression path was not significant in the first test model ($\beta = -.16$, $p > .05$) and the liking path in the second test model was not significant as well ($\beta = -.40$, $p > .05$). These results suggested that the second explanation was not true. Thus, it was decided to take the first explanation and form second-level constructs to the structural model.

The second-level construct structural model is presented in Figure 5.3. In this model, a cognitive trust higher level factor was formed based on cognition-based trust perception and general leadership impression, and an affective trust higher level factor was formed based on relationship-based trust perception and liking. Overall, the second-level construct structural model had an acceptable fit to the data (χ^2 (159, N = 471) = 316.750, $p < .001$; $\chi^2/df = 2.0$, CFI = .97, TLI = .97, RMSEA = .05, SRMR = .04). The

explained variance of the dependent variable (trust willingness) was $R^2 = .733$. The path between cognitive trust and trust willingness ($\beta = .27$, $p < .01$) was significant. The path between affective trust and trust willingness ($\beta = .62$, $p < .01$) was significant, too. Cognitive trust significantly correlated with affective trust ($R = .83$, $p < .01$). A trend of stronger affective path than a cognitive path was shown based on the path coefficients.

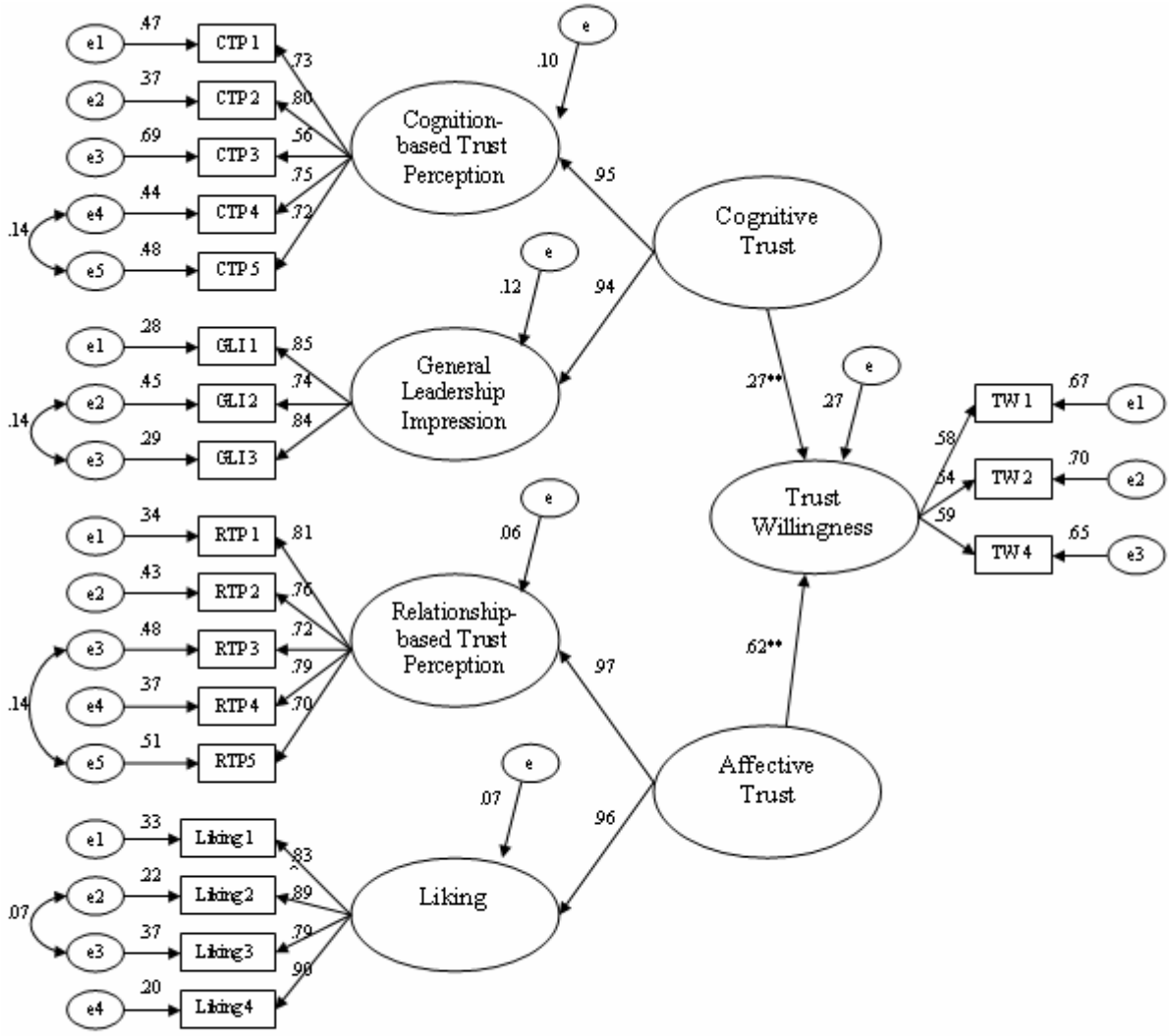

Figure 5.3. Second-level construct structural model
χ^2 (159, N = 471) = 316.750, $p < .001$; $\chi^2/df = 2.0$, CFI = .97, TLI = .97, RMSEA = .05, SRMR = .04
** $p < .01$; * $p < .05$

For exploratory purposes, a test of whether the cognitive path coefficient was different from the affective path coefficient was conducted. First, the cognitive path and the affective path were constrained to be equal in model 1. Second, the two paths were allowed to be freely estimated in model 2. A chi-square difference test was performed to compare model 1 and model 2 and it was not significant ($\Delta\chi^2$ (Δdf = 1) = .681, $p > .05$). This result suggested that the constrained model should be preferred compared to the freely estimated model. Thus, although a trend for trust willingness to be influenced more strongly by affective trust than by cognitive trust was observed, it was not statistically significant.

The second-level construct structural model included the core trust variables only. I collected five control variables in the online survey. All control variables (trust propensity, private body consciousness, affect intensity, PA, and NA) were added to the second-level construct structural model. This model with all control variables was tested and it yielded a poor model fit, χ^2 (247, N = 471) = 740.136, $p < .001$, (χ^2/df= 3.0, CFI = .92, TLI = .90, RMSEA = .07, SRMR = .21). Moreover, all the paths of trust propensity and private body consciousness were not significant. Therefore, trust propensity and private body consciousness were dropped. Next, the second-level construct structural model with only three control variables was tested. This model fit the data poorly (χ^2 (213, N = 471) = 696.590, $p < .001$, (χ^2/df= 3.3, CFI = .92, TLI = .91, RMSEA = .07, SRMR = .23). The three control variables predicted cognitive and affective trust significantly but did not predict trust willingness significantly. A comparison of these two models with control variables to the original second-level construct structural model is presented in

Table 5.3. Based on the poor model fit indices and the non-significant path coefficients, all the control variables were dropped from the structural model. The original second-level construct structural model was retained for the hypothesis testing in the next step.

Table 5.3
Model Comparison of Second-level Construct Structural Model and Structural Models with CVs

		Second-level construct structural model	Second-level construct structural model with all CVs	Second-level construct structural model with 3 CVs
Model fit indices	$\chi 2$	316.750	740.136	696.590
	df	159	247	213
	p	<.001	<.001	<.001
	CFI	.97	.92	.92
	TLI	.97	.90	.91
	RMSEA	.05	.07	.07
	SRMR	.04	.21	.23
CV path coefficients	PA ---> TW	-	-.04, p>.05	-.03, p>.05
	PA ---> CT	-	.17, p<.01	.17, p<.01
	PA ---> AT	-	.12, p<.01	.12, p<.01
	NA ---> TW	-	-.01, p>.05	-.01, p>.05
	NA ---> CT	-	-.14, p<.01	-.14, p<.05
	NA ---> AT	-	-.14, p<.01	-.14, p<.01
	AIM ---> TW	-	.01, p>.05	.01, p>.05
	AIM ---> CT	-	.15, p<.01	.16, p<.01
	AIM ---> AT	-	.17, p<.01	.17, p<.01
	TP ---> TW	-	.06, p>.05	-
	TP ---> CT	-	-.04, p>.05	-
	TP ---> AT	-	-.02, p>.05	-
	PBC ---> TW	-	.03, p>.05	-
	PBC ---> CT	-	.03, p>.05	-
	PBC ---> AT	-	.02, p>.05	-

Note. N=471. CV=Control Variable, PA=Positive Activation, NA=Negative Activation, AIM=Affect Intensity Measure, TP=Trust Propensity, PBC=Private Body Consciousness, TW=Trust Willingness, CT=Cognitive Trust, AT=Affective Trust.

In sum, a structural model that formed second-level latent factors was employed for multigroup analyses in the following section. This second-level latent factor structural model suggested that trust willingness was influenced by both cognitive trust and

affective trust. This result supported my proposed trust framework in which the trust formation is a dual-process. The strong path coefficient of affective trust (.62) also indicated the important role of affect in the trust formation.

Multigroup analyses for memory conditions. Hypothesis 8 included two hypotheses that stated different predictive patterns of cognitive trust across different memory conditions. Specifically, Hypothesis 8a predicted that the path weight of cognition-based trust perception to trust willingness would be largest in the semantic memory condition and smallest in the episodic memory condition. Hypothesis 8b predicted that the path weight of general leadership impression to trust willingness would be largest in the semantic memory condition and smallest in the episodic condition.

In contrast, Hypothesis 9 included two hypotheses that stated different predictive patterns of affective trust across the different memory conditions. Specifically, Hypothesis 9a predicted that the path weight of relationship-based trust perception to trust willingness would be largest in the episodic memory condition and smallest in the semantic memory condition. Hypothesis 9b predicted that the path weight of liking to trust willingness would be largest in the episodic memory condition and smallest in the semantic memory condition. The second-level construct structural model was used to test these hypotheses. Hypothesis 8a and 8b were tested through the path between cognitive trust and trust willingness. Hypothesis 9a and 9b were tested through the path between affective trust and trust willingness.

To test the path coefficient difference across different memory conditions, multigroup analysis was employed. The first stage of multigroup analysis was to test the

equivalency of the measurement model across conditions. The second-level construct structural model had two levels of latent variables. I first tested the first-level latent variable measurement model equivalency across conditions. To do that, a fixed model in which all the paths between the first-level latent variables and their indicators were constrained to be equal across conditions was compared to a freely estimated model in which all the paths between the first-level latent variables and their indicators were allowed to be freely estimated across conditions. A chi-square difference test was performed and the result was not significant ($\Delta\chi^2$ (Δdf = 30) = 29.331, p > .05). It suggested that the fixed model was preferred compared to the freely estimated model. Therefore, the first-level latent variable measurement model was equivalent across conditions.

Next, the second-level latent variable measurement model was tested. A similar process was followed to do this. A fixed model in which the paths between the second-level latent variables and their indicators were constrained to be equal across conditions was compared to a freely estimated model in which the paths between the second-level latent variables and their indicators were estimated freely across conditions. The chi-square difference test was not significant ($\Delta\chi^2$ (Δdf = 4) = 2.644, p > .05). It suggested that the fixed model was preferred compared to the freely estimated model. Thus, the second-level latent variable measurement model was equivalent across conditions. In summary, the measurement model was equivalent across the three memory conditions and this equivalency was the foundation for multigroup analysis in the next stage.

At the second stage, a baseline model was first established for each group separately. Then, a series of restrictive models was tested that related to the equivalency of specific paths in specific conditions. Model 1 constrained the path coefficients to be the same across conditions. Model 2 set the path between cognitive trust and trust willingness free in the semantic memory condition. Model 3 set the path between affective trust and trust willingness free in the episodic memory condition. A significant change in chi-square would provide support for group difference because it would indicate that freeing specific path coefficients improves model fit.

The baseline model yielded an acceptable model fit of the data, χ^2 (519, semantic: N = 153, episodic: N = 158, control: N = 160) = 795.582, $p < .001$, (χ^2/df= 1.5, CFI = .96, TLI = .95, RMSEA = .06, SRMR = .06). The baseline model was presented in Figure 5.4. Specifically, Figure 5.4a, 5.4b, and 5.4c were baseline models for the semantic memory condition, the episodic memory condition, and the control condition, respectively. Cognitive trust and affective trust were significantly correlated in all the three conditions (semantic: R = .82, $p < .01$; episodic: R = .83, $p < .01$; control: R = .85, $p < .01$). The explained variance of the dependent variable (trust willingness) for the three conditions were semantic: $R^2 = .652$; episodic: $R^2 = .715$; control: $R^2 = .809$.

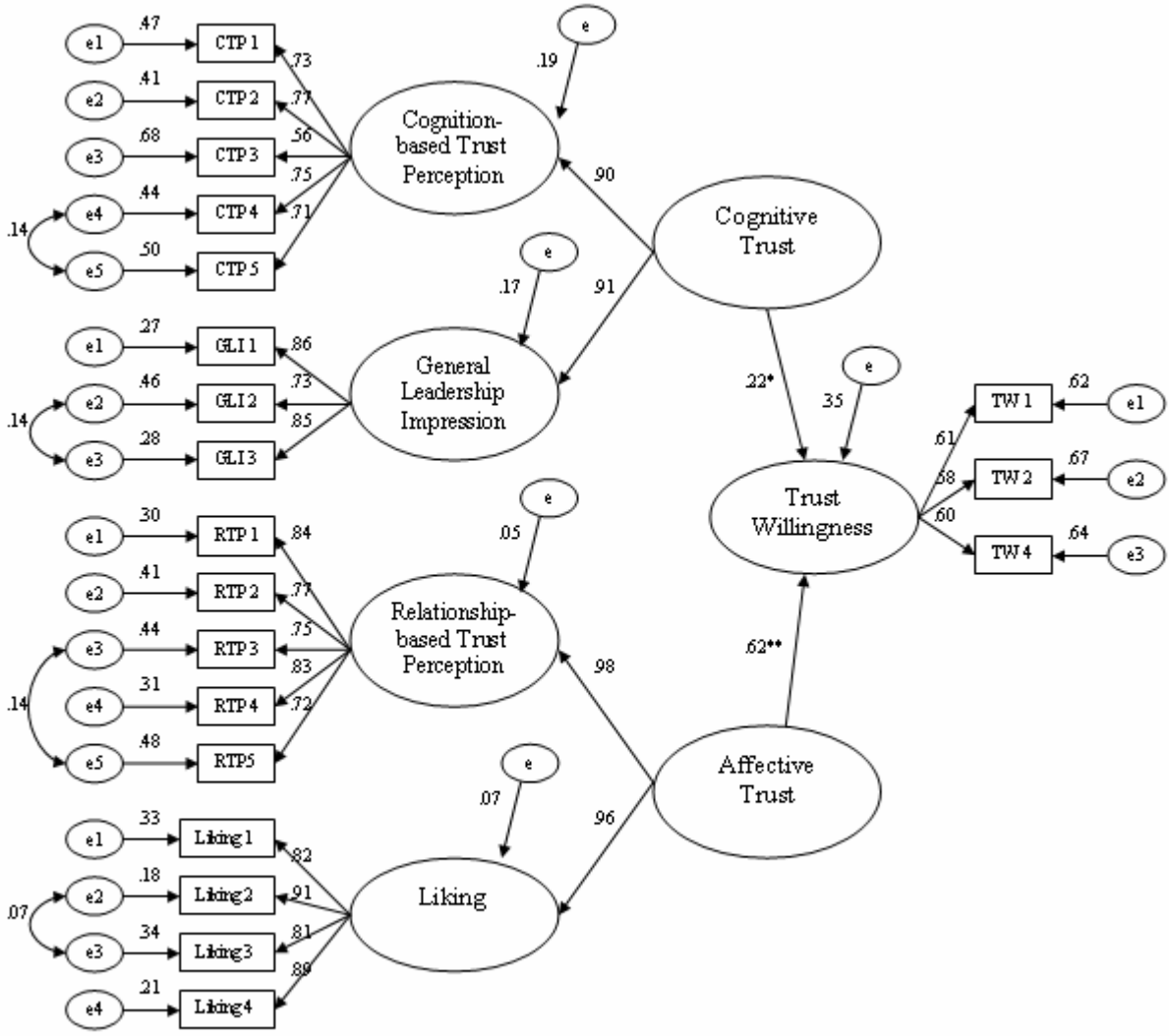

Figure 5.4a. Baseline model for the semantic memory condition.
** p < .01; * p < .05

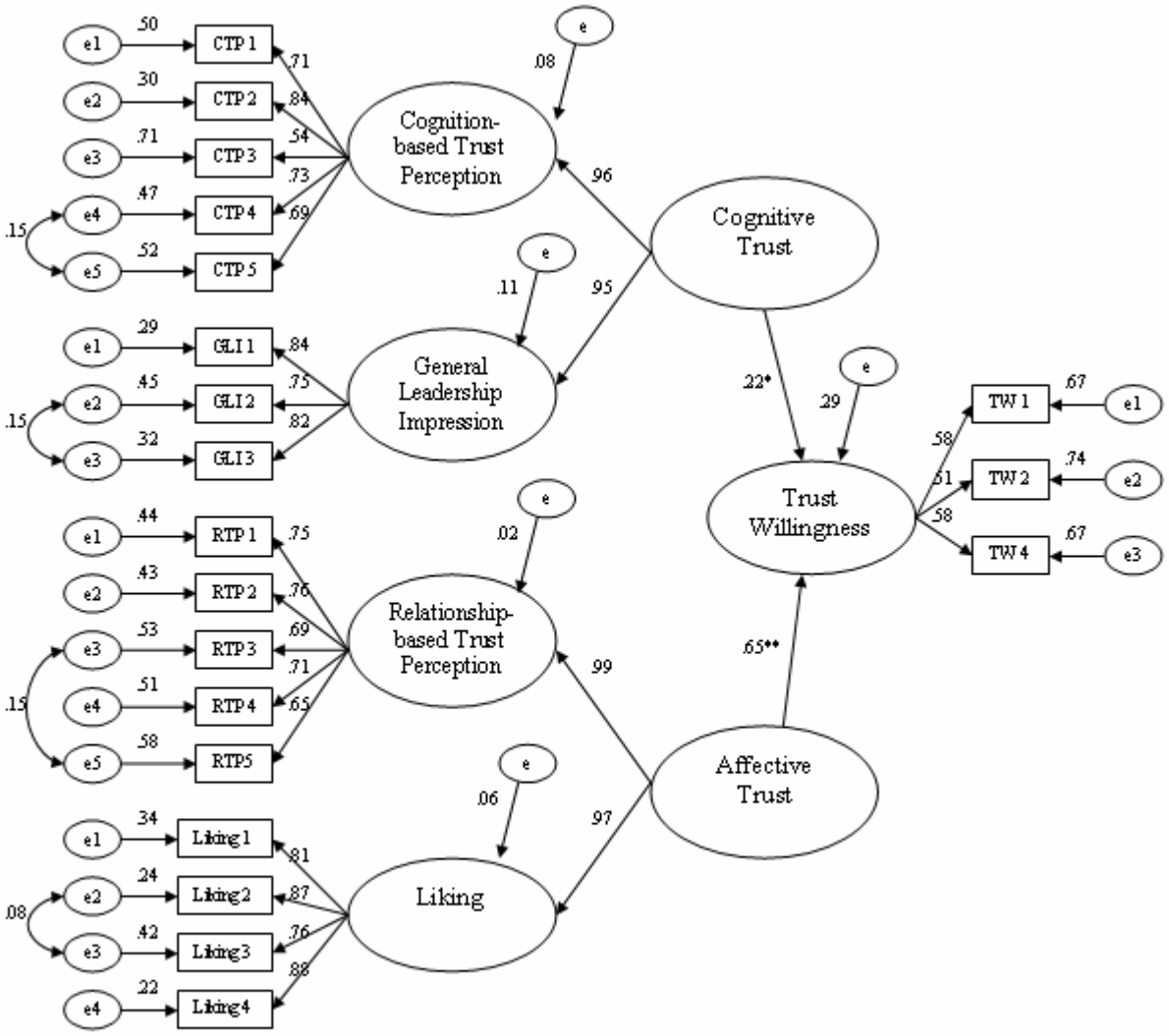

Figure 5.4b. Baseline model for the episodic memory condition.
** p < .01; * p < .05

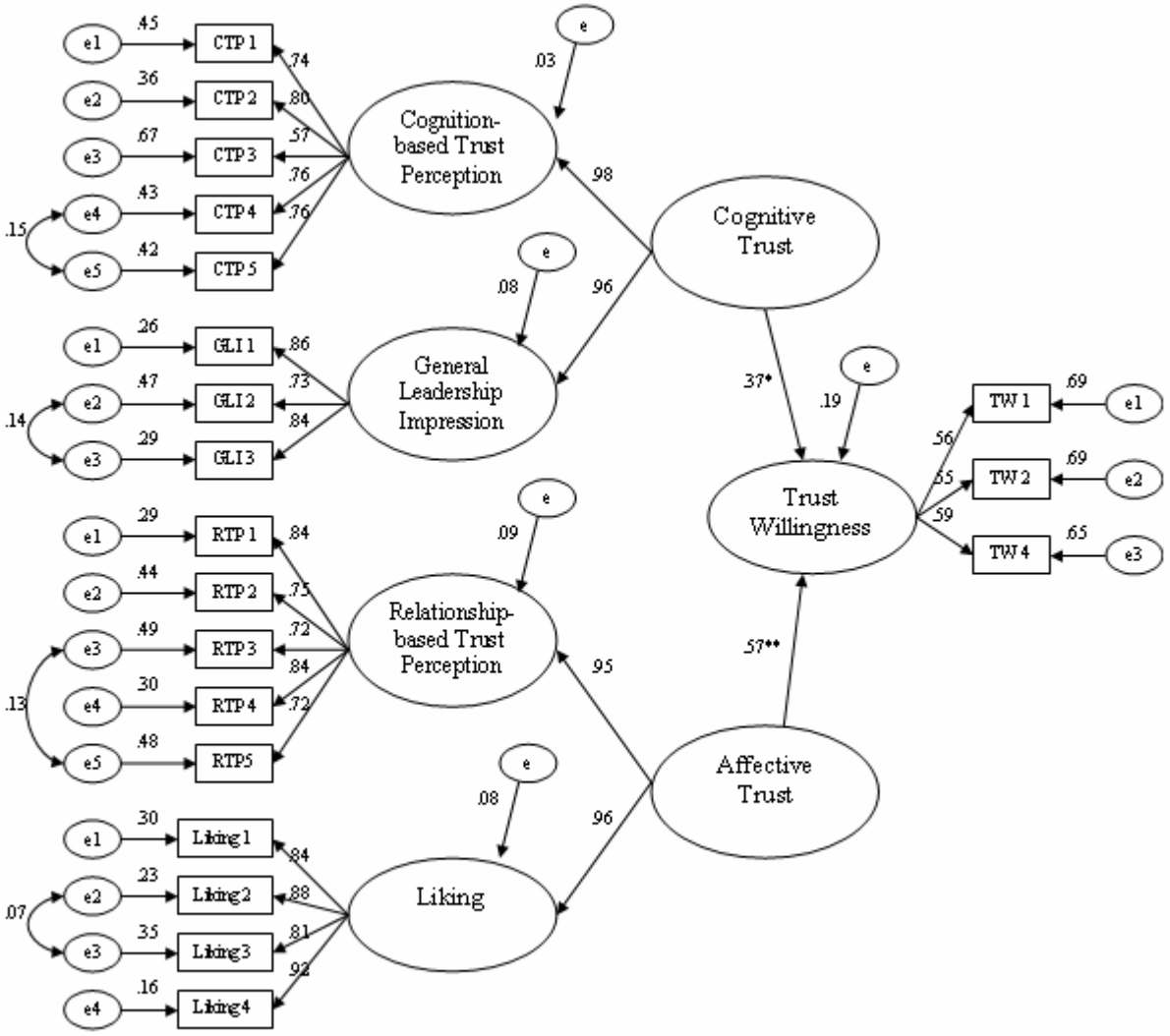

Figure 5.4c. Baseline model for the control memory condition.
** p < .01; * p < .05

Hypothesis 8a and 8b predicted that the path coefficient between cognitive trust and trust willingness should be largest in the semantic memory condition and smallest in the episodic memory condition. First, a fixed model in which the path between cognitive trust and trust willingness, as well as the path between affective trust and trust willingness, was constrained to be the same across conditions was compare with a freely estimated model in which the cognitive trust path was allowed to be freely estimated for the semantic memory condition. The chi-square difference test was not significant ($\Delta\chi^2$

(Δdf = 1) = 0.008, p > .05). This result suggested that the cognitive trust path coefficient in the semantic memory condition was the same as the one in other conditions. Second, the same fixed model was compare with a freely estimated model in which the cognitive trust path was allowed to be freely estimated for the episodic memory condition. The chi-square difference test was not significant ($\Delta\chi^2$ (Δdf = 1) = 0.044, p > .05). This result suggested that the cognitive trust path coefficient in the episodic memory condition was the same as the one in other conditions. In summary, the results of mutigroup analysis for the cognitive trust path coefficient did not support Hypothesis 8a and 8b. The cognitive trust appeared to influence trust willingness equally across the three conditions.

Hypothesis 9a and 9b predicted that the path coefficient between affective trust and trust willingness should be largest in the episodic memory condition and smallest in the semantic memory condition. First, a fixed model in which the path between affective trust and trust willingness, as well as the path between cognitive trust and trust willingness, were constrained to be the same across conditions was compare with a freely estimated model in which the affective trust path was allowed to be freely estimated for the episodic memory condition. The chi-square difference test was not significant ($\Delta\chi^2$ (Δdf = 1) = 0.147, p > .05). This result suggested that the affective trust path coefficient in the episodic memory condition was the same as the one in other conditions. Second, the same fixed model was compare with a freely estimated model in which the affective trust path was allowed to be freely estimated for the semantic memory condition. The chi-square difference test was not significant ($\Delta\chi^2$ (Δdf = 1) = 0.001, p > .05). This result suggested that the affective trust path coefficient in the semantic memory condition was

the same as the one in other conditions. In summary, the results of mutigroup analysis for the affective trust path coefficient did not support Hypothesis 9a and 9b. The affective trust appeared to influence trust willingness equally across the three conditions.

Multigroup analyses for post hoc memory groups. The hypothesis testing path comparisons among memory conditions was not significant. This result could partially be due to the fact that the experimental manipulation in the semantic memory condition was not as effective as in the episodic memory condition. Therefore, I employed a post hoc approach to create new memory groups based on the knowing and remembering ratings, and then retested the hypotheses using the new memory groups.

The knowing ratings were used to indicate the extent the participants accessed their semantic memory. Thus, the higher their knowing ratings were, the more likely they accessed their semantic memory. In contrast, the remembering ratings were used to indicate the extent the participants accessed their episodic memory. Thus, the higher their remembering ratings were, the more likely they accessed their episodic memory. Table 5.4 presents the frequency distributions of knowing and remembering ratings. The group with higher knowing ratings than remembering ratings was categorized as the knowing group. The group with the higher remembering ratings than the knowing ratings was categorized as the remembering group. The group whose knowing ratings were the same as their remembering ratings was categorized as the neutral group. Thus, the sample size for the new knowing group was 106. The sample size for the new remembering group was 173. The sample size for the new neutral group was 224.

Table 5.5 presents the overlap between the new memory groups and the experimental memory conditions. The overlap rates with the semantic, episodic, and control memory conditions were 7%, 12%, and 16%, respectively. A chi-square test of independence was performed for the experimental memory condition and the new memory group and the result was not significant, χ^2 (4) = 2.25, p > .05. This result suggested that there was no relationship between the memory condition and the new memory group.

Table 5.4
Knowing and Remembering Rating Frequency Distribution.

		Remembering Rating						Total
		1	2	3	4	5	6	
Knowing Rating	1	2	0	0	0	0	0	2
	2	0	2	4	2	6	6	20
	3	0	2	8	10	19	4	43
	4	0	3	13	76	87	12	191
	5	1	4	14	45	101	23	188
	6	2	5	3	9	5	35	59
Total		5	16	42	142	218	80	503

Note. Participants within the bolded area form the new control group; participants within the left side of the bolded area form the new semantic memory group; participants within the right side of the bolded area form the new episodic memory group.

Table 5.5
Frequency Overlap between the New Memory Groups and the Experimental Memory Conditions.

		Experimental Memory Condition			
		control	episodic	semantic	Total
New Memory Group	neutral	78	72	74	224
	remembering	53	62	58	173
	knowing	41	31	34	106
	Total	172	165	166	503

The same procedure which was conducted for the experimental memory conditions was followed here using these newly constructed groups. The same second-level latent construct model was employed. The first stage of mutigroup analysis was to test the equivalency of the measurement model across the new memory groups. The first-level latent variable measurement model was tested and the result of a chi-square difference test was not significant ($\Delta\chi^2$ (Δdf = 30) = 40.838, p > .05). This result suggested that the first-level latent variable measurement model was equivalent across the new memory groups. Next, the second-level latent variable measurement model was tested. The chi-square difference test was not significant ($\Delta\chi^2$ (Δdf = 4) = 5.314, p > .05). This result suggested that the second-level latent variable measurement model was equivalent across the new memory groups. In summary, the measurement model was equivalent across the three new memory groups.

At the second stage, a baseline model was established for each memory group separately. The baseline model yielded an acceptable model fit of the data, χ^2 (509, semantic: N = 97, episodic: N = 162, control: N = 211) = 809.742, p < .001, (χ^2/df= 1.6, CFI = .95, TLI = .95, RMSEA = .06, SRMR = .07). The baseline model is presented in Figure 5.5. Specifically, Figure 5.5a, 5.5b, and 5.5c were baseline models for the new knowing group, the new remembering group, and the new neutral group, respectively. Cognitive trust and affective trust were significantly correlated in all three groups (knowing: R = .90, p < .01; remembering: R = .83, p < .01; neutral: R = .80, p < .01). The explained variance of the dependent variable (trust willingness) for the three groups were knowing: R^2 = .930; remembering: R^2 = .739; neutral: R^2 = .687.

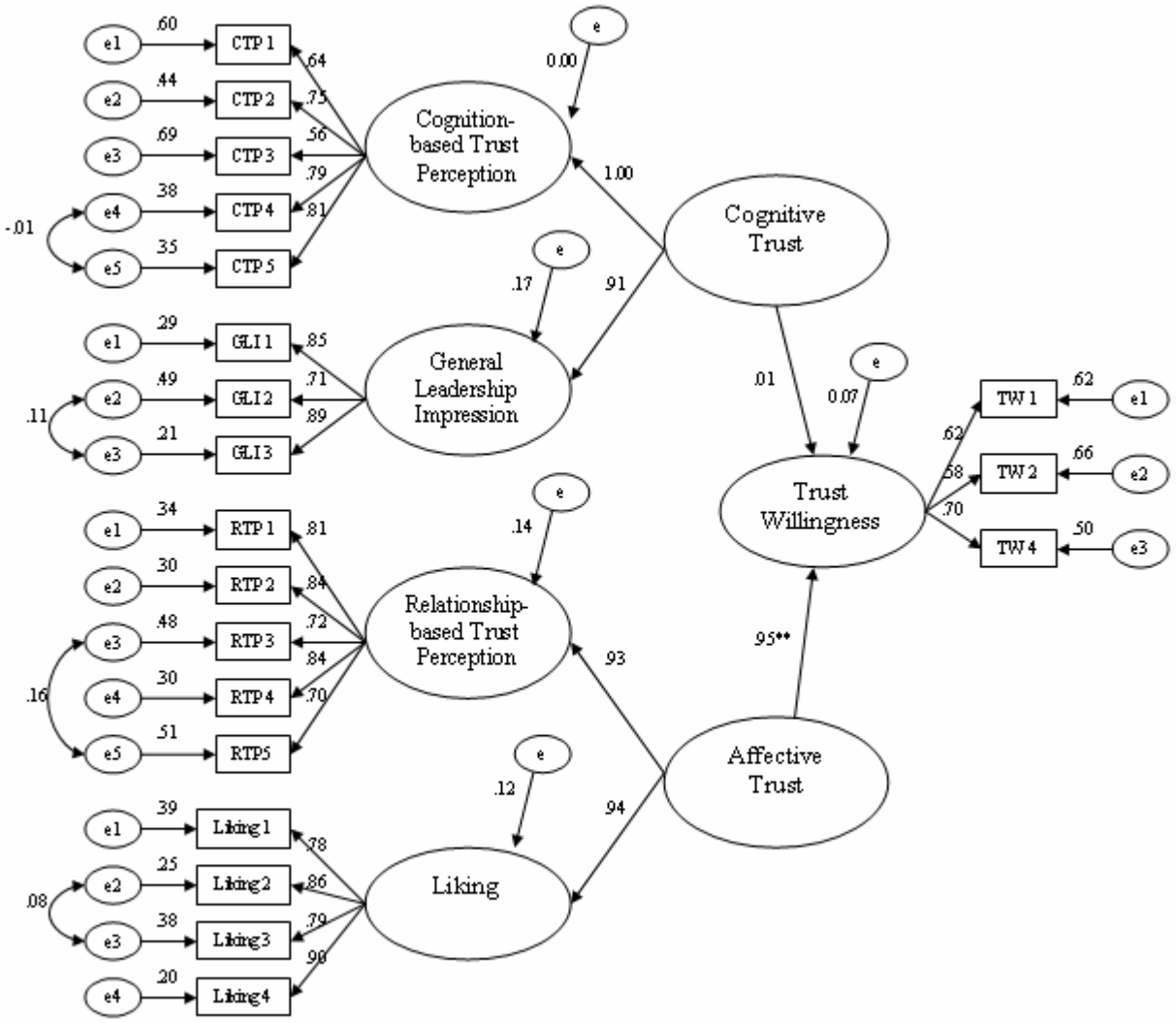

Figure 5.5a. Baseline model for the new knowing group.
** p < .01; * p < .05

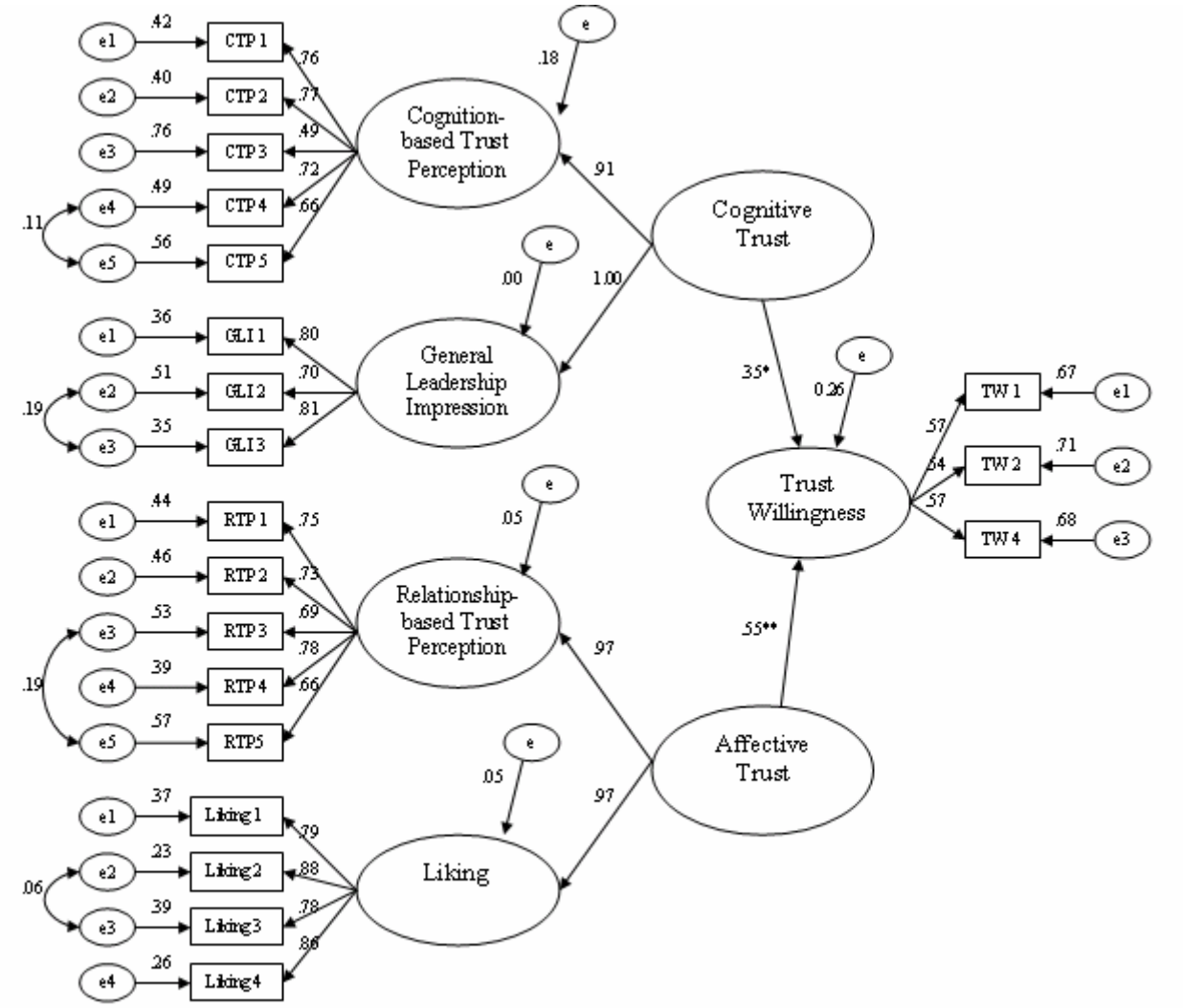

Figure 5.5b. Baseline model for the new remembering group.
** p < .01; * p < .05

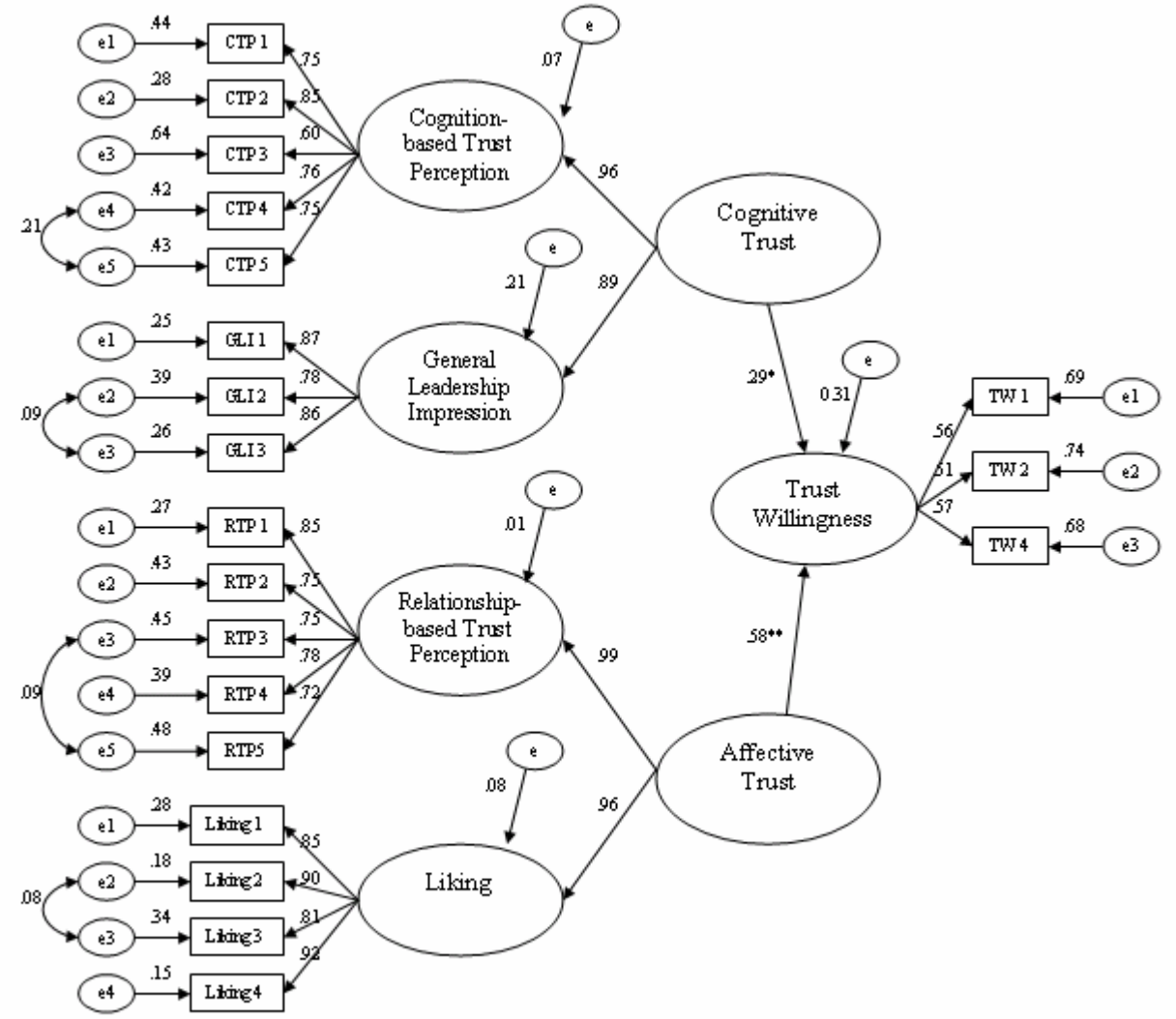

Figure 5.5c. Baseline model for the new neutral group.
** p < .01; * p < .05

Hypothesis 8a and 8b predicted that the path coefficient between cognitive trust and trust willingness should be largest in the knowing group and smallest in the remembering group. First, a fixed model in which the path between cognitive trust and trust willingness, as well as the path between affective trust and trust willingness, was constrained to be the same across groups was compare with a freely estimated model in which the cognitive trust path was allowed to be freely estimated for the knowing group.

The chi-square difference test was not significant ($\Delta\chi^2$ (Δdf = 1) = 2.637, p > .05). This result suggested that the cognitive trust path coefficient in the knowing group was the same as the one in the neutral group. Second, the same fixed model was compare with a freely estimated model in which the cognitive trust path was allowed to be freely estimated for the remembering group. The chi-square difference test was not significant ($\Delta\chi^2$ (Δdf = 1) = 2.115, p > .05). This result suggested that the cognitive trust path coefficient in the remembering group was the same as the one in the neutral group. In summary, the mutigroup analysis results of the newly constructed groups for the cognitive trust path coefficient did not support Hypothesis 8a and 8b. The cognitive trust appeared to influence trust willingness equally across the three groups.

Hypothesis 9a and 9b predicted that the path coefficient between affective trust and trust willingness should be largest in the remembering group and smallest in the knowing group. First, a fixed model in which the path between affective trust and trust willingness, as well as the path between cognitive trust and trust willingness, was constrained to be the same across groups was compare with a freely estimated model in which the affective trust path was allowed to be freely estimated for the remembering group. The chi-square difference test was not significant ($\Delta\chi^2$ (Δdf = 1) = 0.583, p > .05). This result suggested that the affective trust path coefficient in the remembering group was the same as the one in the neutral group. Second, the same fixed model was compare with a freely estimated model in which the affective trust path was allowed to be freely estimated for the knowing group. The chi-square difference test was not significant ($\Delta\chi^2$ (Δdf = 1) = 0.001, p > .05). This result suggested that the affective trust path coefficient

in the knowing group was the same as the one in the neutral group. In summary, the mutigroup analysis results of the newly constructed memory groups for the affective trust path coefficient did not support Hypothesis 9a and 9b. The affective trust appeared to influence trust willingness equally across the three groups.

The results from the newly constructed memory groups showed a similar pattern as the results from the memory conditions. The cognitive and affective trust path coefficients are presented in Table 5.6. Overall, it suggested that affective trust influenced trust willingness more strongly than cognitive trust across memory conditions and groups. However, the cognitive trust path and the affective trust path were compared using the full sample, and the difference was not significant.

Table 5.6
Cognitive and Affective Trust Paths for Memory Conditions and New Memory Groups.

	Memory condition			New memory group		
	semantic	episodic	control	knowing	remembering	neutral
affective trust path	.62**	.65**	.57**	.95**	.55**	.58**
cognitive trust path	.22*	.22*	.37*	.01	.35*	.29*

Note. ** $p < .01$; * $p < .05$.

Summary of Hypothesis Testing Results

Most of the hypotheses in the new cognitive and affective trust model were supported. Hypothesis 1 predicted that cognition-based trust perception positively related to trust willingness. Hypothesis 2 predicted that relationship-based trust perception positively related to trust willingness. Both hypotheses were supported. These results showed that the proposed trust in leadership process was empirically meaningful. Rather than being treated as dichotomized cognitive and affective pieces, trust should be viewed

from a process perspective that includes both paths. The cognitive and affective pieces are not different trust constructs but different trust mechanisms needed to reach trust decision.

Hypothesis 3 predicted that general leadership impression positively related to cognition-based trust perception. In addition, Hypothesis 4 predicted that general leadership impression positively related to trust willingness. They were both supported. These two hypotheses, coupled with Hypothesis 1, conceptually explain the cognitive trust process. Cognition-based trust perception and cognitive reaction operationalized as general leadership impression work closely to influence trust willingness. This conceptualization received support from both the correlational analysis and the SEM analysis. In the correlational analysis, it was found that the correlation between cognition-based trust perception and general leadership impression was significantly stronger than the correlation between relationship-based trust perception and general leadership impression. In the SEM analysis, cognition-based trust perception and general leadership impression were driven by data to form a latent construct that was cognitive trust. These results suggest that cognition-based trust perception and cognitive reaction work together to influence trust decisions and this process is the cognitive trust process.

Hypothesis 5 predicted that liking positively related to relationship-based trust perception. Hypothesis 6 predicted that liking also positively related to trust willingness. They were both supported. These two hypotheses, coupled with Hypothesis 2, conceptually explain the affective trust process. Relationship-based trust perception and affective reaction operationalized as liking work closely to influence trust willingness.

This conceptualization also received supports from the correlational analysis and the SEM analysis. It was found in the correlational analysis that the relationship between relationship-based trust perception and liking was significantly stronger than the relationship between cognition-based trust perception and liking. In addition, the SEM analysis suggested that relationship-based trust perception and liking should form a latent construct that was affective trust. These results indicate that relationship-based trust perception and affective reaction work together to influence trust decisions and this process is the affective trust process.

Some hypotheses were not supported. Hypothesis 7 predicted that general leadership impression and liking interactively influenced trust willingness. It was not supported by the result. I proposed this hypothesis based on the general notion that human cognition and emotion should influence each other and jointly decide action decisions. However, the result showed that it wasn't the case for this study. This result suggests that cognitive trust and affective trust may not interactively influence trust decisions but they still work together and exert separate effects at the same time. Rather, it may work in a slightly different way. That is, both of them contribute to trust decisions extensively but relatively independently.

Hypothesis 8a and 8b predicted that cognitive trust influenced trust willingness more than affective trust in the semantic memory condition. In contrast, Hypothesis 9a and 9b predicted that affective trust influenced trust willingness more than cognitive trust in the episodic memory condition. These hypotheses were not supported by the data. However, some interesting observations were noticed from the data analysis. First, the

analysis result from the post hoc memory groups showed a similar pattern as the result from the memory conditions. This consistency helps strengthen the findings of the study. Although the memory manipulation was found to be less effective to solely activate specific memory, the post hoc analysis replicated the findings from the manipulation. Second, the affective trust path showed a larger coefficient than the cognitive trust path regardless of memory conditions and groups (Figure 4.3, 4.4, and 4.5). Although this was not statistically significant, it suggests that affect plays an important role in trust decision making, and it may have more influence than cognition in some circumstances. Third, a clear result that both of the cognitive trust path and the affective trust path influence trust willingness at the same time was consistent across most memory conditions. This suggests that nature of the trust process is a dual-mechanism in which both cognition and affect are critical determinants. It is important for trust researchers to consider both in their studies.

Exploratory Analyses

Cognition-based trust perception and relationship-based trust perception have been proven to be meaningful trust determinants. They reflect different aspects of the trust processes. The focus of cognition-based trust perception is the perceived character-based leader classification. The focus of relationship-based trust perception is the perceived mutual relationship between employees and leaders. The main purpose of the exploratory analyses is to differentiate cognition-focused and relationship-focused antecedents as well as outcomes for the two types of trust perceptions.

Based on the literature review, procedural justice and distributive justice were categorized as cognition-focused antecedents, while informational justice, interpersonal justice, and empathy were categorized as relationship-focused antecedents. For organizational outcomes, continuance commitment was categorized as cognition-focused outcome, while affective commitment, normative commitment, and LMX were categorized as relationship-focused outcomes. Accordingly, a path model is presented in Figure 5.6 and tested. It fit data poorly, χ^2 (136, N = 483) = 677.419, p < .001, (χ^2/df= 5.0, CFI = .86, TLI = .84, RMSEA = .09, SRMR = .19).

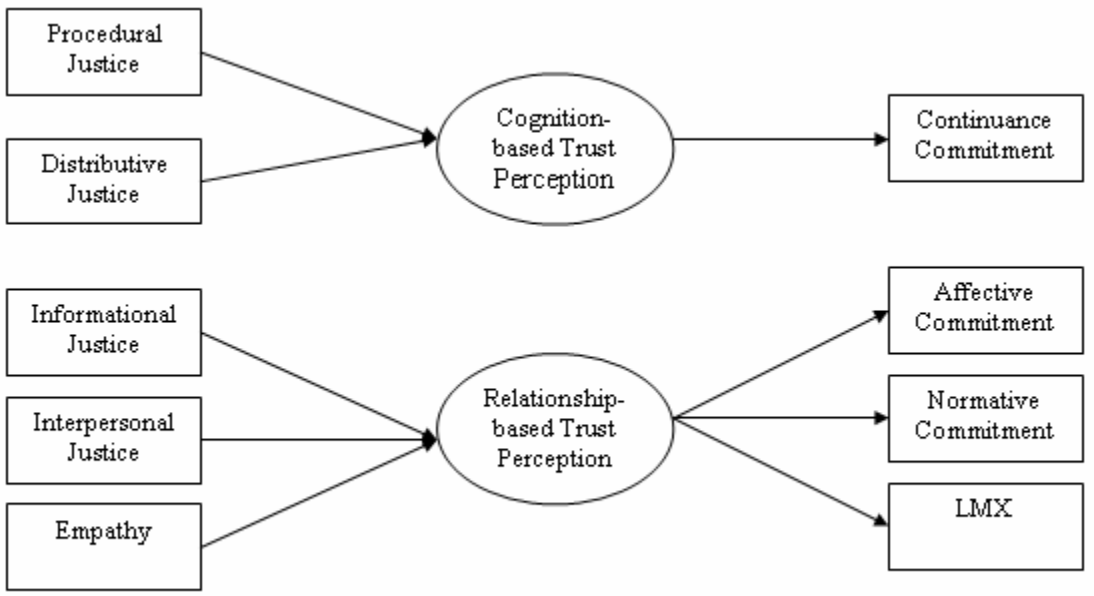

Figure 5.6. Path model for exploratory analyses.

To improve the model fit, I looked the model modification indices. First, the modification indices suggested that adding a path between informational justice and cognition-based trust perception. Informational justice is whether one is truthful and provides adequate information when things go badly. Therefore, it is not only relevant with the relationship perspective of others but also relevant with the cognitive side of

others because it makes information available for cognitive analysis. A study done by Camerman, Cropanzano, and Vandenberghe (2007) also suggested a relationship between informational justice and cognition-based trust perception. They found that the path coefficient from informational justice to trust in the staffing agent was .70 ($p<.01$), and the content of the scale used to measure trust in the staffing agent (a typical item: "I trust my staffing agent to make the right decisions in situations that affect me personally") was highly oriented towards the cognitive but not the relationship component. Thus, it made conceptual sense to add a path from informational justice to cognition-based trust perception.

Second, the model modification indices suggested adding some intercorrelations among trust perception items. The items which measured the same construct were allowed to be correlated (relationship-based trust perception item 3 and 5; relationship-based trust perception item 1 and 2; cognition-based trust perception item 4 and 5; cognition-based trust perception item 1 and 2). Third, the modification indices suggested a correlation between cognition-based trust perception and relationship-based trust perception. This correlation was theoretically (Dirks & Ferrin, 2002) and empirically suggested (see Table 5.1). Therefore, this correlation path between the two trust perceptions was added.

A revised path model presented in Figure 5.7 was tested and it yielded a good fit to the data, χ^2 (130, N = 483) = 336.420, $p < .001$, (χ^2/df= 2.6, CFI = .95, TLI = .94, RMSEA = .06, SRMR = .05). In this path model, cognition-based trust perception was significantly predicted by procedural justice but not by distributive justice. It was also

significantly predicted by informational justice. Relationship-based trust perception was significantly predicted by informational justice, interpersonal justice, and empathy. On the outcome side, cognition-based trust perception predicted continuance commitment significantly; whereas, relationship-based trust perception predicted affective commitment, normative commitment and LMX significantly.

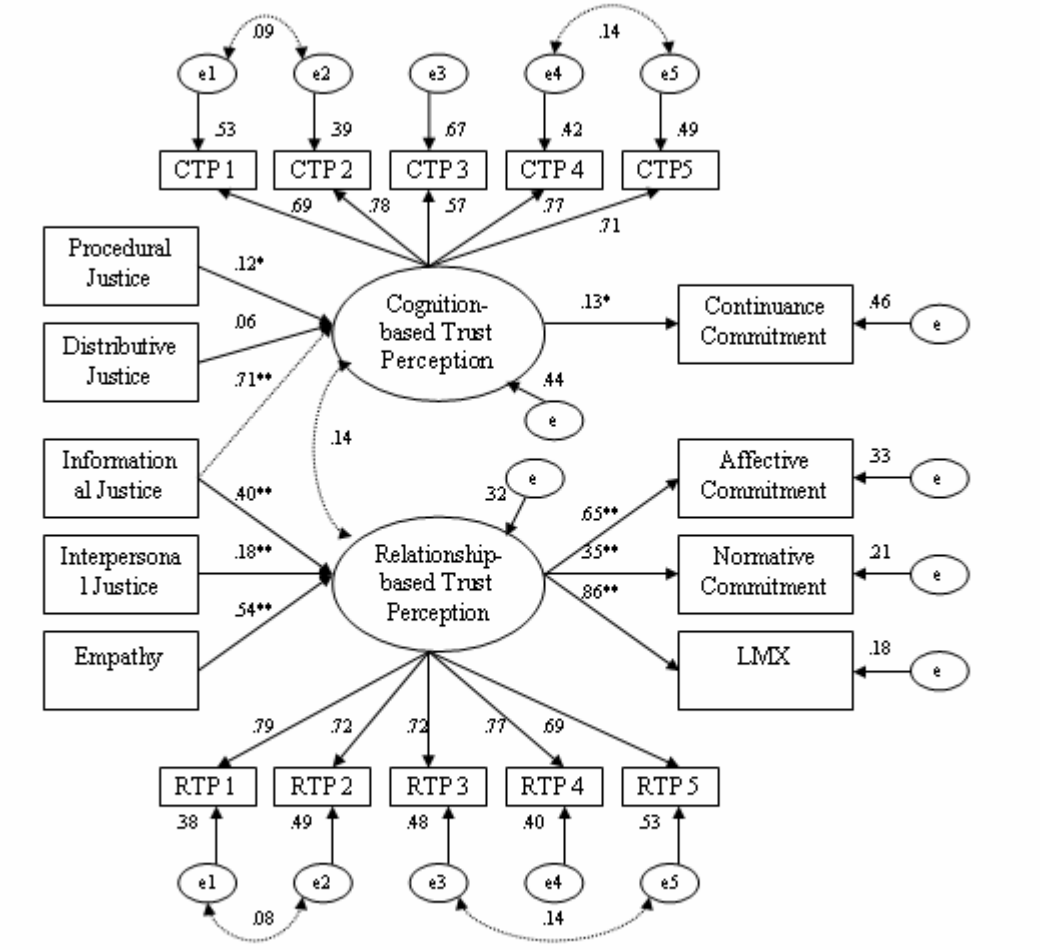

Figure 5.7. Modified path model for exploratory analyses.
χ^2 (130, N = 483) = 336.420, p < .001; χ^2/df= 2.6, CFI = .95, TLI = .94, RMSEA = .06, SRMR = .05

This path model suggests that cognition-based trust perception and relationship-based trust perception reflect two equally important perceptions of leaders in an organization. One is a cognition oriented process and the other is a relationship oriented

process. Kellett et al. (2002) proposed a dual-process model of leader perception development in which a perception of leadership is formed through a cognitive process and an affective process. The cognitive process works through the perception of leaders' mental ability such as complex task performance; whereas, the affective process works through the perception of leaders' emotional ability such as empathy. The process of cognition-based trust perception parallels with the cognitive process of the task leader perception and the process of relationship-based trust perception fits with the affective process of the relations leader perception. In addition to Kellett et al.'s proposition, the tested path model identified some specific organizational antecedents and outcomes for the two processes. The practical implications of these antecedents and outcomes to an organization will be presented in the discussion chapter.

CHAPTER VI

DISCUSSION

Trust in leadership has been studied extensively in the past several decades (Bunker, Alban, & Lewicki, 2004), but the role of affect in trust in leadership process still remains to be clearly articulated. Fortunately, trust process considering cognition and affect have received more attentions from researchers recently (Dirks & Ferrin, 2002; McAllister, 1995). However, empirical studies in this area are still rare (Yang & Mossholder, 2010). Consistent with this emerging request for empirical studies of cognitive and affective trust in leadership processes, this study looked into the cognitive and affective dynamics relevant to trust in leadership.

This study contributes to the trust in leadership literature in several ways. First, this study tested the cognitive and affective trust in leadership framework directly and provided empirical support for the role of affect in trust in leadership process. Second, it linked the cognitive and affective trust in leadership processes with semantic and episodic memory systems. This effort created a new area for trust in leadership researchers to explore. Third, this study explored some organizational antecedents and outcomes linked to the cognitive and affective trust in leadership processes.

The sections below expand upon the findings and implications of this study. I first review the results of my hypothesis testing and discuss their relevance to other trust in leadership research. Then, I turn to a discussion of future research directions. Next, some

practical implications are discussed for the findings. Lastly, I mention some key limitations that should be addressed when considering the findings.

Principal Findings

This section is divided into clusters of related hypotheses for interpretative clarity. First, the cognitive and affective trust in leadership framework is revisited in a context of relevant studies. Then, the findings regarding the relationship between trust in leadership and memory are discussed and some plausible explanations are provided.

Trust in Leadership: A Dual-process

There is a consensus in trust researchers that affect is important for trust development. However, few researches specify how affect has its impact. In a seminal study, McAllister (1995) proposed his cognitive and affective trust model. This was the beginning of the effort to explain how affect and trust can be integrated. Unfortunately, because of the incorrect labeling of affective trust, which should be more appropriately called relationship-based trust perception, McAllister's model created difficulty for other researchers wanting to explore this direction and test his model in empirical studies. Therefore, although several trust models that included the affective trust component were proposed (Burke, et al., 2007; Dirks & Ferrin, 2002; McAllister, 1995), the lack of empirical studies to test them has not changed much. This leads to a situation in which the trust in leadership literature has been skewed toward the cognitive explanations (Schoorman, Mayer, & Davis, 2007). The present study is an effort to address this research gap by directly examining the cognitive and affective trust dynamics in the formation of a trust decision.

The formation of trust willingness includes two fundamental processes: cognitive trust process and affective trust process. The cognitive trust process involves an integrative process of cognition-based trust perception and a general cognitive reaction to the leader. The results supported the relationship between trust willingness and cognition-based trust perception (H1), the relationship between trust willingness and the general cognitive reaction to the leader (H4), and most importantly, that cognition-based trust perception and the general cognitive reaction work integratively to influence trust willingness (H3). On the other hand, the affective trust process involves an integrative process of relationship-based trust perception and a general affective reaction to the leader. The results supported the relationship between trust willingness and relationship-based trust perception (H2), the relationship between trust willingness and the general affective reaction to the leader (H6), and most importantly, that relationship-based trust perception and the general affective reaction work integratively to influence trust willingness (H5). It was also hypothesized that the general cognitive reaction and the affective reaction should interact with each other to influence trust willingness (H7). But this hypothesis was not supported. This result suggests that the role of affect in trust process should be considered independently from cognition. This is consistent with research findings of political attitude judgments (Abelson, Kinder, Peters, & Fiske, 1982; Ottati, Steenbergen, & Riggle, 1992) that emotional reactions to a political candidate predict attitudes toward the candidate independently of beliefs about the candidate.

This fundamental dual-process trust in leadership framework reflects two important conceptual implications. First, affect plays a crucial part in the formation of

trust decision. It includes two components. One is a relationship-based trust perception and the other is an affective reaction toward the leader. Some recent studies also found that affect directly influence trust. In a lab study (Dunn & Schweitzer, 2005), the researchers triggered participants' emotional states by asking them to describe several things and situations that made them feel angry/sad/happy. Then their trust toward their coworkers was measured. It was found that the incidental emotional states significantly influenced trust. Happy participants were significantly more trusting than were sad participants, and sad participants were significantly more trusting than were angry participants. In another study (Huang & Murnighan, 2010), the researcher used the names participants liked or disliked as priming materials, and these priming materials were presented in a parafoveal eye region where semantic contents can be processed without conscious awareness. After that, the participants played a trust game and assign dollars to receivers based on trusting. It was found that the subliminally priming positive relational cues (liked names) led to more trust behaviors than the priming negative relational cues (disliked names). These study results provide supports for the impact of affect on trust, not only at a conscious level, but also at a subconscious level.

The second conceptual implication is that cognition and affect influence the formation of trust decision together. Neither of them can be ignored in the trust process. A recent study finding also provided supports for this notion. Ballinger, Schoorman, and Lehman (2009) conducted a field study to explore what factors influence trust in new leaders. It was found that the affective reactions toward the departure of the prior leaders significantly predicted the trust in the new leaders when there was no history between the

employees and the new leaders. When there was some history between the employees and the new leaders, both the affective reactions toward the departure of the prior leaders and an evaluation of the new leaders' ability on their prior job predicted the trust in the new leaders. A longitudinal simulation of trust formation was conducted and replicated the findings of the field study. This result suggests that the trust formation is a dual-process including both affective process (affective reaction toward the departure of the prior leaders) and cognitive process (evaluation of the new leaders' ability).

Some other researchers adopted the framework of cognitive and affective trust, and explored their unique contribution to organizational functions. Yang, Mossholder, and Peng (2009) conducted a field study to test the different functions of cognitive trust and affective trust in the mediating role of supervisory procedural justice. It was found that cognitive trust mediated the relations of supervisory procedural justice with performance and job satisfaction; whereas, affective trust mediated the relations of supervisory procedural justice with helping behavior at work. In another study (Yang & Mossholder, 2010), the bases (cognition and affect) and foci (management and supervisor) of trust were taken into consideration at the same time. It was found that the four variants of trust in organizational leadership were distinguishable and had different effects on employee outcomes. Specifically, affective trust in supervisor significantly predicted in-role and extra-role behaviors. Affective trust in supervisor and affective trust in management significantly predicted affective organizational commitment. Cognitive trust in management and affective trust in supervisor explained variance in job satisfaction. Interesting, they did not find cognitive trust in supervisor had any significant effects.

Besides the above conceptual implications of my trust framework that received supports from other studies, my framework makes several unique theoretical contributions to the trust literature. First, a clear line was drawn between trust perception and trust willingness, which is an important part that was missing from the past trust studiess emphasizing the affective trust component (Ferrin et al., 2008). This missing component reflects the neglect of the internal process related to affective trust, focusing instead only on relationships of affective trust and other variables (Erturk, 2007; Gillespie & Mann, 2004; McAllister, 1995; Dirks & Ferrin, 2002). In contrast, the separation of trust perception and trust willingness makes it possible to explore the dynamic of cognitive and affective trust process. Second, my framework used the term relationship-based trust perception instead of an overall affective trust. This new term helps clarify the connection between relationship and affect. In my framework, relationship-based trust perception is a part of affective trust process but is separated from affective reaction. That is, relationship-based trust perception and affective reaction work together to form affective trust process, but they are different conceptual constructs. Similarly, cognition-based trust perception and cognitive reaction also work together to build cognitive trust process, but they are different concepts too. Third, the role of affect in trust in leadership is not simply reflected in trust willingness decision per se, that is, willing to or not willing to be vulnerable. Instead, the role of affect, as well as the role of cognition, is reflected in why people make their trust willingness decisions. My results suggest that people tend to rely equally on both cognitive and affective trust process in trust willingness decision making.

My framework is also an effort to integrate the current trust in leadership models. The cognitive trust model (Mayer et al., 1995) can be represented in the cognitive process of my framework in which cognition-based trust perception and cognitive reaction to the leader form the cognitive trust determinant which then influences trust willingness. The trust models focusing on both affective and cognitive trust (Dirks & Ferrin, 2002; McAllister, 1995) can be represented along with the cognitive trust process and the affective trust process in a much detailed and in-depth way in my framework. Cognition-based trust perception and cognitive reaction form the cognitive trust determinant, and relationship-based trust perception and affective reaction form the affective trust determinant. The cognitive trust determinant and affective trust determinant then impact trust willingness together. Thus, my integrative framework shows its compatibility to existing research results as well as opens the possibility for future studies.

Memory and Trust in Leadership Process

The proposed relationship between memory systems and trust in leadership process was not supported by the data. Semantic memory was proposed to be associated to cognitive trust more strongly than to affective trust (H8a and H8b), while episodic memory was proposed to be associated to affective trust more strongly than to cognitive trust (H9a and H9b). However, the results showed that across all three memory conditions, the cognitive trust path was approximately equal to the affective trust path. This result clearly suggested that information from both semantic memory and episodic memory works as the resource for both cognitive trust process and affective trust process.

My hypotheses of memory systems and trust in leadership process were based primarily on the research findings that suggest a close link between affect and episodic memory (Allen et al., 2008; D'Argembeau & Van der Linden, 2004). In contrast, few studies linked affect with semantic memory. But this doesn't mean that affect only maps to episodic memory and cognition only maps to semantic memory. On the contrary, research suggested that affective process and cognitive process were involved in both semantic memory and episodic memory (Ryan, Cox, Hayes, & Nadel, 2008). Therefore, it is not surprising that my results showed that both semantic and episodic memory have connections to both cognitive and affective trust processes.

Reasons for the affective effects in the semantic memory condition. Both cognitive and affective trust processes are linked to semantic memory. The cognitive trust process is a process in which cognition-based trust perception and cognitive reactions toward the leader work closely influencing trust willingness. The level of cognition-based trust perception is thought to be dependent on the comparison between the actual cognition-based trust perception and the good and poor leader prototypes that are stored in semantic memory. A fit with the good leader prototype results in a high level of cognition-based trust perception, while a fit with the poor leader prototype leads to a low level of cognition-based trust perception. This was supported by my data. Participants in the semantic memory condition were asked to rate their direct supervisor on the good and poor characteristics they listed previously. The correlation between cognition-based trust perception and the rating of the good characteristics was $r = .60$, $p < .01$; whereas, the correlation between cognition-based trust perception and the rating of the poor

characteristics was $r = -.63$, $p < .01$. In the other hand, cognitive reaction toward the leader is an overall leadership impression that could be less trust relevant. The overall leadership impression of the leader as a context independent knowledge of the leader is stored in semantic memory. The cognitive trust process includes retrieving the leader prototype information and the overall leadership impression of the leader from semantic memory and performing the comparison in working memory to reach a trust willingness decision. Thus, the cognitive trust process and semantic memory should have close connections.

In contrast, the affective trust process involves a process in which relationship-based trust perception and affective reaction toward the leader work closely influencing trust willingness. For relationship-based trust perception, there may be no prototype stored in semantic memory, and affective reaction may not be stored in semantic memory either. Why then does the affective trust process show connections with semantic memory? There are three possible explanations for this phenomenon. The first plausible reason could be due to the memory exercise. I added a rating piece in the semantic memory exercise asking participants to rate their direct supervisor on the five good and five poor characteristics they listed. This rating of specific person could lead to two possible outcomes. One possibility is that the rating of their direct supervisors triggered some context dependent memories that were stored in episodic memory. For example, participants may recall a relevant situation when they tried to rate their direct supervisor on a specific characteristic. Thus, the manipulation of semantic memory condition was less successful, and episodic memory also was activated by the exercise. The affective

trust path coefficient in the semantic memory condition may reflect an effect from retrieval of information from episodic memory.

Another possibility is that the semantic memory condition rating triggered some affective feelings towards the direct supervisor. Ratings on the good characteristics may trigger positive affective state while ratings on the poor characteristics may trigger negative affective state. This activated affective state could easily influence affective reaction toward the supervisor and in turn influence trust willingness. As a matter of fact, the slightly stronger affective trust path coefficient than the cognitive path coefficient in the semantic memory condition, though not statistically significant, may be a reflection of this possibility.

The second possible explanation for the process of trust willingness formation is based on the importance of the impression formation (Williams, 2001). If you have a good impression on your leader, a favorable trust willingness decision will be made, while if you have a poor impression on your leader, an unfavorable trust willingness decision will be made. According to Srull and Wyer (1989), the impression formation process follows a series of stages which begins with the formation of an initial overall general evaluation concept of the person (for example, likeable or dislikeable). Once people form their overall general evaluation concept for a given target, they will use its implication for judgments without reviewing the specific behaviors on which the concept is based. But if they don't have such a concept stored in memory, they need to review and analyze specific behaviors of the given target to form the overall evaluation concept (Hastie & Park, 1986). It is clear that affect is heavily involved when people use their

overall likeable or dislikeable evaluative concept to make a judgment. This has been suggested in research that affect feeling toward a target can color a subordinate's leadership perceptions and relevant judgment (Hall & Lord, 1995). Other research also found that the affective basis of the evaluation determines the strength of an object-evaluation association in memory (van den Berg, Manstead, van der Pligt, & Wigboldus, 2005). Therefore, for participants in the semantic memory condition, they may already have an overall general evaluation about their direct supervisor. In this case, they tend to just use this likable or dislikeable concept to form their trust willingness decision. This may be why the affective trust path exerts impact on trust willingness.

The third possible explanation for the effects of affect in the semantic memory condition is offered by the affect-as-information model (Schwarz & Clore, 1988). This model suggests that people often misattributes their mood to the judgment at hand. Specifically, when people make evaluative judgments, they unconsciously ask themselves "how do I feel about (the judgment)?" In responding to this question, people may use his or her feelings to inform the judgment. Schwarz (1990) further pointed out that the affect-as-information heuristic is most likely to influence complex or affective judgment in nature. Trust judgments are both complex and affective in nature (Williams, 2001). Therefore, the high affective trust path coefficient could be due to the fact that participants just utilized their affective state as a source to form the decision of trust willingness.

Reasons for the cognitive effects in the episodic memory condition. The results also showed that both cognitive and affective trust process linked to episodic memory.

Research has shown a close link between episodic memory and emotion (Allen et al., 2008; D'Argembeau & Van der Linden, 2004). Therefore, it is not difficult to understand why episodic memory has connections with the affective trust process. The context specific information that pertains to interactive situations between employees and their direct supervisors is stored in episodic memory. This context information is an important resource for employees to build their relationship-based trust perception. On the other hand, emotional cues that are related to specific contexts are also stored in episodic memory. These emotional memory traces can trigger emotional reactions toward their supervisors when asked to form a trust willingness decision. Therefore, episodic memory plays a crucial role in the affective trust process.

The link between cognitive trust process and episodic memory can be explained from two aspects. First, according to Srull and Wyer (1989), when people don't have an available overall evaluation concept, they need to perform an analysis of a given target's specific behaviors and this analysis is primarily a cognitive process. Similarly, in the episodic memory condition, the participants were asked to recall the detail information of the interactive situation with their direct supervisor. By performing the task, all the specific behaviors of the supervisor in that situation become available to the participants to analyze. Thus, it is possible that the participants just utilize this handy behavioral information and perform a cognitive analysis about their supervisor's trustworthiness. This cognitive analysis process would relate to the formation of the trust willingness decision, and thus, the cognitive trust process would become influential.

Second, not only does the behavioral information become available to the participants in the episodic memory condition, but also the information is more accurate when the situation is related to some emotional memories (Kensinger, 2007). The researcher used behavioral and neuroimaging evidence to conclude that negative emotion enhances not only the subjective vividness of a memory but also the accuracy of some event details. In my study, when the participants have the accurate behavioral information available, it is not hard to understand that they want to perform a cognitive analysis to reach a more accurate trust willingness decision. Research has found that people preferred to use more organized and accurate information when they make ratings of other people (DeNisi, Robbins, & Cafferty, 1989). Thus, the accuracy of the information related to emotions, coupled with the availability of the information from the recalled interactive situation, encourages the participants to perform a cognitive analysis rather than use an overall heuristic to make trust willingness decisions. This may be why a link between episodic memory and cognitive trust process was observed.

To my knowledge, my study is the first one to explore how memory systems may relate to the cognitive and affective trust processes. Although the data did not support the kind of simple relationship I hypothesized, it suggests that both semantic memory and episodic memory work as resources for both cognitive and affective trust processes. It may be due to the less successful manipulation of the separate memory systems in this study. If this is true, a more refined manipulation may discover a more specific pattern of connections between memory and trust process. Thus, my study is just a beginning of

trying to understand the relationship between memory and trust. My framework and approach open the door for more research findings.

Antecedents and Outcomes of Trust Perceptions

In addition to the test of hypotheses, an exploratory analysis was conducted to identify some organizational antecedents and outcomes connected to trust perception. As expected, cognition-based trust perception and relationship-based trust perception have their unique organizational antecedents and outcomes. Cognition-based trust perception was predicted by cognition-focused antecedents such as procedural justice, and it predicted cognition-focused outcomes such as continuance commitment. Relationship-based trust perception was predicted by relationship-focused antecedents such as interpersonal justice and empathy, and it predicted relationship-focused outcomes such as affective commitment, normative commitment and LMX.

The conceptual proposition that cognitive trust and affective trust have their unique organizational antecedents and outcomes is addressed in other trust model too (Dirks & Ferrin, 2002). Surprisingly, despite advances in conceptualizing cognitive and affective trust and their relationships with other variables, there has been a mismatch in the amount of empirical research focusing on the same area (Lewicki, Tomlinson, & Gillespie, 2006). The only empirical test studies I found that consider cognitive trust and affective trust within the same conceptual framework and explore their antecedents and outcomes are either from the beginning when this conceptualization appeared (McAllister, 1995) or from very recent studies (Yang & Mossholder, 2010; Yang et al., 2009). In his original research in which cognitive and affective trust framework was proposed,

McAllister (1995) tested antecedents and outcomes for the two trust concepts. It was found that interactive frequency and peer affiliative citizenship behavior predicted affective trust; whereas, affective trust predicted manager need-based monitoring, manager affiliative citizenship behavior and manager assistance citizenship behavior. Meanwhile, all the proposed antecedents and outcomes for cognitive trust were not significant. In the recent studies by Yang and his colleagues (Yang & Mossholder, 2010; Yang et al., 2009), outcomes of cognitive and affective trust were the focus. It was found that affective trust predicted in-role behaviors, extra-role behaviors including helping behavior at work, job satisfaction and affective organizational commitment. Cognitive trust predicted job performance and job satisfaction.

Compared with these research findings, results of my exploratory analyses revealed more unique organizational antecedents and outcomes that connect to cognitive trust process and affective trust process specifically. It also made a sound contribution to the literature as an empirical test of the trust framework that includes cognitive and affective trust processes together.

Future Research Directions

As the study helps explain some conceptual issues, more issues remain to be addressed. The first one is to continue to explore the relationship between memory and different trust processes. By refining the memory manipulation and better activating a targeted memory access, what kind of connections will there be between memory and trust processes? Will it be what was found in this study? Or will it be a pattern of specific

connections between specific memory and specific trust process? These questions need to be addressed.

Another intriguing area is the bi-directional mechanism of trust. My study only tested the trust process from employees toward their leaders. It is obvious that trust of leaders toward their employees also matters in organizational practice. Will the trust toward leaders and the trust toward subordinates interact with each other? A recent study suggested the importance of mutuality in trust and cooperation development (Ferrin et al., 2008). Mutuality means that one party's trust perception and/or cooperation may be affected by the other's. Their results supported a spiral model of perceived trustworthiness and cooperation. That is, one party's perceived trustworthiness of another party enhances cooperation behaviors of this party. The increased cooperation behaviors are perceived by the other party, and this perception enhances their perceived trustworthiness toward the first party. Thus, the other party behaves more cooperatively. This again is perceived by the first party, and in turn, further enhances its perceived trust worthiness toward the other party. This spiral of trust perception and cooperation between the two parties forms a positive feedback system. It will be interesting to explore how cognitive trust perception and affective trust perception play out in this spiral motion.

There is little research on the topic of leaders' trust in their followers. Most of the trust study focused on the other direction. A recent study using Chinese sample focused on what predicts leaders' trust (Wang & Clegg, 2007). They found that the work value of centralization negatively related to leaders' trust in followers' predictability. Group

orientation and formalization positively correlated with leaders' trust in their followers' good faith. It would be interesting to see the antecedents and outcomes for cognitive and affective trust of leader toward their followers.

The interplay of the cognitive trust process and the affective trust process should be explored more. Specifically, how do the two trust processes develop over time? Young and Daniel (2003) found that at early stages of relationship building in an organization, trust tended to be more cognitively determined by levels of competency and goal congruence; whereas, in later stages trust was determined more by personal feelings. Research on how trust develops over time and the two trust processes evolves should be a fruitful direction.

A recent study (Yang et al., 2009) discovered the different mediating roles of cognitive trust and affective trust in the relationships of supervisory procedural justice and other organizational outcomes. Some unique organizational antecedents and outcomes were revealed by my exploratory analysis results. It would be interesting to further explore whether cognition-based trust perception and relationship-based trust perception mediate relationships of some of the antecedents and outcomes.

Practical Implications

My trust in leadership framework emphasizes equally the importance of the cognitive trust process and the affective trust process in trust willingness formation. It provides some guidance for leaders to improve their perceived trust by their followers. Being capable of performing tasks and finishing leader responsibilities may not be enough to build a high trust perception. A good leader should consider not only his or her

ability to get the job done but also his or her relationship building ability with employees. As suggested by Kellett et al. (2002), mental ability and emotional ability are both essential to generate a leadership perception.

As for how to improve the perceived trust by employees, depending on where the problem is, different focus of intervention strategies should be applied. The path model tested in the exploratory analyses provides some potential suggestions. For example, if the diagnosis of a trust issue between the leader and the employees shows that it is due to a low level of relationship-based trust perception, coaching and training strategies should be focused more on improving his/her skills to show empathy for employees and being more attentive to interpersonal justice issues. That is, in a decision making process, the leader should try to understand employees' concerns, think from their perspective, let them feel that he or she sincerely cares about them, show respect to them, and explain to them why the decision was made. In contrast, if the trust problem is about cognition-based trust perception, that is, employees have doubts on the leader's ability to lead the team, the leader may need to check whether they did a good job on the procedural justice issues such as making decision processes more transparent, involving employees within the process, and allowing them to express their voices.

Another practical implication of my framework pertains to new leader coaching programs. My framework emphasizes the importance of relationship building on the trust in leadership process. Recent research showed that one of the top reasons for new executives to leave early is relationship issues (Davis, 2005). Failure to build qualitative relationships with workmates such as supervisors, coworkers, and subordinates is fatal to

the success of a new executive, especially when the new leader is externally recruited. Even for internally promoted new leaders, adjusting relationships with old colleagues given one's new role could be challenging. The old teammates now become subordinates. The old supervisor becomes a workmate at the same level. These changes require the new leader to recalibrate and adapt to the new relationships. My framework not only points out the importance of relationship within organization, but it also reveals that relationship-based trust perception works with affective reaction to influence trust willingness. Therefore, it shows all new executives that they have to consider others' affective reactions to their new policies and actions.

Limitations

Despite the interesting findings and implications of this study, there are some limitations that must be recognized. First, as noted previously, the memory manipulation was less effective in the semantic memory condition. The original intention of adding a rating process of the direct supervisor was to better match the semantic memory condition and the episodic memory condition so that a direct supervisor related task was included in both conditions. However, this rating piece seems to have increased the likelihood that not only semantic memory but also episodic memory was activated by the memory exercise. Thus, the results from the semantic memory condition became an outcome with mixed activation of semantic memory and episodic memory. This decreased the preciseness of my explanations to the study findings.

A second important limitation is the common method variance. In this study, all the data were collected by means of self-report from followers. Therefore, both predictor

and criterion variable data were collected through the same process. In such a situation, the common method variances inevitably increased the correlation between predictors and criterion variables and in turn, may result in an inflation of the statistical results. A latent variable approach was adopted to deal with the problem. Analysis results suggested that the common method variance was not problematic in the study. However, it was suggested recently that the commonly adopted post hoc statistical detection and correction techniques had higher risks in handling the common method variance (Richardson, Simmering, & Sturman, 2009). Results from simulation showed that the common method variance existed where the post hoc statistical detection suggested none, and that the common method variance continued to exist after the correction techniques had been applied. Therefore, the authors suggested that researchers should pay more attention on how to avoid the common method variance from the beginning of study design rather than taking the chance and fixing the common method variance afterward. The implication to my study is that there might still be a common method variance bias in my analysis and, thus, a better design that involves data from different resources should be used in the future.

As a result, a consequence of such a possible common method variance may be that variables were more highly correlated than they otherwise might have been in my study. These high correlations could have easily created multicolinearity problems that increased standard errors, making what seemed like big differences nonsignificant in my model. For example, the path loading differences for the affective and cognitive trust paths were relatively large for both the memory conditions and the new memory groups

(see Table 5.6), but none of these path differences was statistically significant. For exploratory purposes, I also compared the currently employed and previously employed subsamples. Again, what seemed like large differences in path coefficients (affective trust: employed .78 vs. not employeed .14; cognitive trust: employed .36 vs. not employeed .50) were not statistically significant, perhaps reflecting the pernicious effects of the common method variance on standard errors.

Another significant limitation is the generalizability of the framework. This limitation exists in two ways. First, a working student sample was employed in the study. To what extent the results can be generalized to the actual work population outside the campus is a concern. Second, the tested cognitive and affective trust framework was aimed at the trust from followers toward their direct supervisor. The rationale of this intentional limitation was the belief that relationship-based trust perception is developed through day-to-day direct interactions. For non-direct leaders, without these direct interactions, it is difficult for relationship-based trust perception to form. Thus, my framework has limitations to be generalized to non-direct leaders and top management. However, I do believe that employees still feel some connections or relationships to non-direct leaders and top management even though they have few interactions with the top management. This sense of relationship and connections definitely influences their trust in the non-direct leaders and top management.

Conclusion

The objective of this study was to explore the cognitive and affective dynamic of trust formation. I integrated the cognition focused trust approach (Mayer et al., 1995) and

the approach emphasizing both cognitive and affective trust (McAllister, 1995; Dirks & Ferrin, 2002) to develop and test an integrative dual-process trust model. More importantly, I conceptually connected the different memory systems and the different trust processes and tested the hypotheses through an experimental design. In addition, I expanded the trust model by identifying and testing specific organizational antecedents and outcomes of cognition-based trust perception and relationship-based trust perception.

In general, I found support for the majority of the proposed dual-process trust model aspects. Cognition-based trust perception works together with cognitive reaction toward the leader to form cognitive trust determinant. Relationship-based trust perception works together with affective reaction toward the leader to form affective trust determinant. Cognitive trust determinant and affective determinant influence trust willingness. The former is a cognitive trust process and the latter is an affective trust process.

Less support was found for the hypothesized relationship between memory and trust processes. Instead of proposed connections between semantic memory and the cognitive trust process and between episodic memory and the affective trust process, the cognitive trust path and the affective trust path were found to equally influence trust willingness across memory conditions. This finding is still meaningful because this study is the first effort in exploring such a relationship. It opens the door for other researchers in this direction.

Some unique organizational antecedents and outcomes were discovered from the exploratory analyses of the expanded trust model. Procedural justice significantly

predicted cognition-based trust perception and cognitive trust perception significantly predicted continuance commitment. Interpersonal justice and empathy were significant predictors for relationship-based trust perception that, in turn, predicted affective commitment, normative commitment and LMX. Informational justice was found to predict both cognition-based trust perception and relationship-based trust perception.

My findings are meaningful in several aspects. First, this study provides an empirical test that has been missing in the literature for the cognitive and affective trust process framework. Second, by distinguish trust willingness and trust perception, this study helps clarify the conceptual ambiguity and integrate the cognitive approach and the dual-process approach in trust research. Third, this study addresses the question of the relationship between memory and trust processes, for the first time, and discovers some insights for this question. In summary, this study consolidates and extends trust in leadership research by providing empirical tests and introducing new theoretical links.

CHAPTER VII

SUMMARY

The importance of trust in leadership has been broadly recognized in the literature (Mayer et al.,, 1995; Williams, 2001). Over the last two decades lots of studies have focused on explaining how trust in leadership is developed and maintained. Researchers have proposed a variety of models of trust in leadership (Burke, Sims, Lazzara, & Salas, 2007; Dirks & Ferrin, 2002; Mayer et al., 1995; McAllister, 1995). A key distinction among these conceptual models is whether trust should include constructs related to affect and leader-follower relationships. Some models do not incorporate affective and relationship components (Burke et al., 2007; Mayer et al., 1995), while other models divide trust into cognitive and affective processes (Dirks & Ferrin, 2002; McAllister, 1995). I believe that trust in leadership, like lot of other psychological phenomenon, is influenced by both affective and cognitive processes.

Although more trust researchers agree that cognition and affect are equally important for trust development (Dirks & Ferrin, 2002), there has been a lack of empirical studies that test a trust model that contains both processes. The present study was an effort to address this research gap by directly examining the cognitive and affective trust dynamics in the formation of trust decision. A new dual-process cognitive and affective trust framework was proposed and tested. Trust willingness was influenced by cognitive trust path and affective trust path. The cognitive trust path was comprised of

cognition-based trust perception and cognitive reaction toward the leader. The affective trust path was comprised of relationship-based trust perception and affective reaction toward the leader. Most of the hypotheses developed from this model were supported by my study results.

Tulving (1972, 1983) made an influential distinction regarding memory: semantic and episodic memory. Semantic memory stores all of our knowledge but does not maintain information regarding how, when, or where the knowledge is obtained; whereas, episodic memory encodes and stores information about autobiographical experiences. I expected to see a pattern such that people rely more on the cognitive trust path than the affective trust path when they retrieve information from semantic memory; whereas, people rely more on the affective trust path than the cognitive trust path when they retrieve information from episodic memory. However, the study results did not support these hypotheses. Instead, the results suggested that people rely equally on the cognitive and affective trust paths to form trust willingness regardless of which memory system they are retrieving information from.

My study also included an exploratory analysis section that focuses on the organizational antecedent and outcomes for the cognitive and affective trust processes. It found that procedural justice significantly predicted cognition-based trust perception and cognitive trust perception significantly predicted continuance commitment. Interpersonal justice and empathy were significant predictors for relationship-based trust perception that, in turn, predicted affective commitment, normative commitment and LMX.

Informational justice was found to predict both cognition-based trust perception and relationship-based trust perception.

These results are important for a variety of reasons. From a theoretical perspective, these results consolidate the trust in leadership research by providing the needed empirical support for a cognitive and affective trust process framework. Similarly, they advance the literature on the role of affect in trust in leadership studies by separating relationship and affect and testing their effects in the trust framework. More importantly, these results shed the first light on the area of relationship between memory and trust in leadership and suggest some further directions. From a practical perspective, the exploratory analyses of the expanded trust model provide potential solutions for different type of trust problems.

In sum, this study makes sound contributions to the trust in leadership literature. It not only provides empirical evidence for important conceptual debates, it also broadens the area of trust in leadership research by suggesting new directions for future research.

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APPENDICES

APPENDIX A

INSTRUCTIONS AND ITEMS OF MEMORY EXERCISES

&

CONTENTS OF EXPLANATIONS FOR KNOWING AND REMEMBERING

Semantic Memory Exercise

Instructions: Before we get into the actual rating section, you are asked to finish a quick exercise. Please read and follow the instructions below.

Instructions: Please list five characteristics of a person who would be a good leader in your organization:

Characteristic 1 _____

Characteristic 2 _____

Characteristic 3 _____

Characteristic 4 _____

Characteristic 5 _____

Instructions: Please list five characteristics of a person who would be a poor leader in your organization:

Characteristic 1 _____

Characteristic 2 _____

Characteristic 3 _____

Characteristic 4 _____

Characteristic 5 _____

Episodic Memory Exercise

Instructions: Before we get into the actual rating section, you are asked to finish a quick exercise. Please read and follow the instructions below.

Please use 30 seconds to think of a specific, memorable face-to-face interaction with your current supervisor or your last supervisor in your organization. Try to recall as many details as possible in that situation (for example, when and where did it happen, how did your supervisor look like, how did your supervisor sound like, how did you feel, how did your supervisor feel, etc.)

When you finish the exercise, go to the next page.

On the next page

Instructions: Please answer the following questions about the interaction situation you just recalled.

When did this interaction happen?

Where did this interaction happen?

What was the general purpose of this interaction?

Were you or your supervisor standing or seated? Was he/she in front, beside, or behind you?

What was your supervisor's mood? (angry, happy, neutral, etc.) What was your mood?

How do you feel about this interaction?

Now focus on the details of this interaction. What kind of clothes did your supervisor wear on that day? (shirt, tie, etc.) What kind of clothes did you wear?

Explanations for Knowing and Remembering

Instructions: In the following section. You will be asked to respond to what extent the rating you just made about your direct supervisor is based on KNOWING or REMEMBERING. Please read the following paragraphs for the definition of KNOWING and REMEMBERING.

There are two types of processes you can use to make judgment about your supervisor. One is KNOWING. The other is REMEMBERING. Please read carefully what these two processes are.

A KNOWING process to make judgment means that you recognize a rating statement because of the feelings of familiarity associated with the behavior described in the statement; that is, although you are unable to recollect the experience of observing that behavior, you are confident of observing it due to the feelings of familiarity associated with the behavior.

A REMEMBERING process to make judgment means that you have a conscious recollection or mental picture of the behavior described in the rating statement. This might include your memory of the way the behavior was performed or what you were thinking about at the time you observed the behavior or how you felt when you saw the behavior. The remembered behavior should bring back to mind a particular association, image, sound, or something about the appearance of the behavior itself.

APPENDIX B

MEASURES FOR PILOT STUDY

Rating Items

Instructions: To what extent do you agree the following statements about your direct supervisor?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

Cognition-based Trust Perception Items

1. My direct supervisor approaches his/her job with professionalism and dedication.

2. Based on what I know about my direct supervisor, I see no reason to doubt his/her competency and preparation for the job.

3. I can rely on my direct supervisor not to make my job more difficult by careless work.

4. Most people, even those who aren't close friends of my direct supervisor, trust respect him/her as a coworker.

5. Other work associates of mine who must interact with my direct supervisor consider him/her to be trustworthy.

Relationship-based Trust Perception Items

1. My direct supervisor and I have a sharing relationship. We can both freely share our ideas, feelings, and hopes.

2. I can take freely to my direct supervisor about difficulties I am having at work and know that he/she will want to listen.

3. My direct supervisor and I would both feel a sense of loss if one of us was transferred and we could no longer work together.

4. If I shared my problems with my direct supervisor, I know he/she would respond constructively and caringly.

5. I would have to say that my direct supervisor and I have both made considerable emotional investments in our working relationship.

Knowing & Remembering Rating

Instructions: Now, think about the rating you just made to your direct supervisor.

Not at All	At a very Low Extent	At a Low Extent	At a Medium Extent	At a High Extent	At a very High Extent
1	2	3	4	5	6

Please rate the extent you made the rating based on KNOWING

Please rate the extent you made the rating based on REMEMBERING

APPENDIX C

INSTRUCTIONS AND ITEMS OF REVISED MEMORY EXERCISES

&

CONTENTS OF EXPLANATIONS FOR KNOWING AND REMEMBERING

Semantic Memory Exercise

Instructions: Before we get into the actual rating section, you are asked to finish a quick exercise. Please read and follow the instructions below.

Instructions: Please list five characteristics of a person who would be a good leader in your organization:

Characteristic 1 _____

Characteristic 2 _____

Characteristic 3 _____

Characteristic 4 _____

Characteristic 5 _____

Instructions: Please think of your direct supervisor. To what extent do you agree that your direct supervisor has each of these five GOOD characteristics you just listed?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

Characteristic 1 _____

Characteristic 2 _____

Characteristic 3 _____

Characteristic 4 _____

Characteristic 5 _____

Instructions: Please list five characteristics of a person who would be a poor leader in your organization:

Characteristic 1 _____

Characteristic 2 _____

Characteristic 3 _____

Characteristic 4 _____

Characteristic 5 _____

Instructions: Please think of your direct supervisor. To what extent do you agree that your direct supervisor has each of these five POOR characteristics you just listed?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

Characteristic 1 _____

Characteristic 2 _____

Characteristic 3 _____

Characteristic 4 _____

Characteristic 5 _____

Episodic Memory Exercise

Instructions: Before we get into the actual rating section, you are asked to finish a quick exercise. Please read and follow the instructions below.

Please use 30 seconds to think of a specific, memorable face-to-face interaction with your current supervisor or your last supervisor in your organization. Try to recall as many details as possible in that situation (for example, when and where did it happen, how did your supervisor look like, how did your supervisor sound like, how did you feel, how did your supervisor feel, etc.)

When you finish the exercise, go to the next page.

On the next page

Instructions: Please answer the following questions about the interaction situation you just recalled.

When did this interaction happen?

Where did this interaction happen?

What was the general purpose of this interaction?

Were you or your supervisor standing or seated? Was he/she in front, beside, or behind you?

What was your supervisor's mood? (angry, happy, neutral, etc.) What was your mood?

How do you feel about this interaction?

Now focus on the details of this interaction. What kind of clothes did your supervisor wear on that day? (shirt, tie, etc.) What kind of clothes did you wear?

Explanations for Knowing and Remembering

Instructions: In the following section. You will be asked to respond to what extent the rating you just made about your direct supervisor is based on KNOWING or REMEMBERING. Please read the following paragraphs for the definition of KNOWING and REMEMBERING.

There are two types of processes you can use to make judgment about your supervisor. One is KNOWING. The other is REMEMBERING. Please read carefully what these two processes are.

A KNOWING process to make judgment means that you recognize a rating statement because of the feelings of familiarity associated with the behavior described in the statement; that is, although you are unable to recollect the experience of observing that behavior, you are confident of observing it due to the feelings of familiarity associated with the behavior.

A REMEMBERING process to make judgment means that you have a conscious recollection or mental picture of the behavior described in the rating statement. This might include your memory of the way the behavior was performed or what you were thinking about at the time you observed the behavior or how you felt when you saw the behavior. The remembered behavior should bring back to mind a particular association, image, sound, or something about the appearance of the behavior itself.

APPENDIX D

MEASURES FOR FOCAL STUDY

Trust Willingness

Instructions: To what extent do you agree the following statements about your direct supervisor?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

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

2. I would be willing to let my direct supervisor have complete control over my future in this company.

3. I really wish I had a good way to keep an eye on my direct supervisor.*#

4. I would be comfortable giving my direct supervisor a task or problem which was critical to me, even if I could not monitor his/her actions.

*Reversed coded items
#Dropped items

Cognition-based Trust Perception

Instructions: To what extent do you agree the following statements about your direct supervisor?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. My direct supervisor approaches his/her job with professionalism and dedication.

2. Based on what I know about my direct supervisor, I see no reason to doubt his/her competency and preparation for the job.

3. I can rely on my direct supervisor not to make my job more difficult by careless work.

4. Most people, even those who aren't close friends of my direct supervisor, trust respect him/her as a coworker.

5. Other work associates of mine who must interact with my direct supervisor consider him/her to be trustworthy.

Relationship-based Trust Perception

Instructions: To what extent do you agree the following statements about your direct supervisor?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. My direct supervisor and I have a sharing relationship. We can both freely share our ideas, feelings, and hopes.

2. I can take freely to my direct supervisor about difficulties I am having at work and know that he/she will want to listen.

3. My direct supervisor and I would both feel a sense of loss if one of us was transferred and we could no longer work together.

4. If I shared my problems with my direct supervisor, I know he/she would respond constructively and caringly.

5. I would have to say that my direct supervisor and I have both made considerable emotional investments in our working relationship.

General Leadership Impression

Instructions: Please respond to the following questions about your direct supervisor.

Not at All	Very Little	Moderate Amount	Substantial Amount	Extreme Amount
1	2	3	4	5

1. How effective is your direct supervisor?

2. To what extent is your direct supervisor typical of a leader?

Not at All	Very Small Degree	Moderate Degree	Substantial Degree	Extreme Well
1	2	3	4	5

3. To what degree does your direct supervisor fit your image of what a leader should be?

Liking

Instructions: To what extent do you agree the following statements about your direct supervisor?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. I think that my direct supervisor would make a good friend.
2. I like my direct supervisor.
3. I get along well with my direct supervisor.
4. Working with my direct supervisor is a pleasure.

Knowing & Remembering Rating

Instructions: Now, think about the ratings you just made to your direct supervisor.

Not at All	At a very Low Extent	At a Low Extent	At a Medium Extent	At a High Extent	At a very High Extent
1	2	3	4	5	6

Please rate the extent you made these ratings based on KNOWING

Please rate the extent you made these ratings based on REMEMBERING

Trust Propensity

Instructions: To what extent do you agree the following statements?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. One should be very cautious with strangers.
2. Most experts tell the truth about the limits of their knowledge.
3. Most people can be counted on to do what they say they will do.
4. These days, you must be alert or someone is likely to take advantage of you.
5. Most salespeople are honest in describing their products.
6. Most repair people will not overcharge people who are ignorant of their specialty.
7. Most people answer public opinions polls honestly.
8. Most adults are competent at their jobs.

Private Body Consciousness

Instructions: To what extent do you agree the following statements about yourself?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. I am sensitive to internal bodily tensions.
2. I know immediately when my mouth or throat gets dry.
3. I can often feel my heart beating.
4. I am quick to sense the hunger contractions of my stomach.
5. I am very aware of changes in my body temperature.

Affect Intensity Measure

Instructions: To what extent do you agree the following statements about yourself?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. When I accomplish something difficult I feel delighted or elated.
2. When I feel happy it is a strong type of exuberance.
3. I enjoy being with other people.
4. I feel pretty bad when I tell a lie.
5. When I solve a small personal problem, I feel euphoric.
6. My emotions tend to be more intense than those of most people.
7. My happy moods are so strong that I feel like I'm in heaven.
8. I get overly enthusiastic.
9. If I complete a task I thought was impossible, I am ecstatic.
10. My heart races at the anticipation of some exciting event.
11. Sad movies deeply touch me.
12. When I'm happy it's a feeling of being untroubled and content rather than being zestful and aroused.
13. When I talk in front of a group for the first time my voice gets shaky and my heart races.
14. When something good happens, I am usually much more jubilant than others.
15. My friends might say I'm emotional.

16. The memories I like most are of those times when I felt content and peaceful rather than zestful and enthusiastic.

17. The sight of someone who is hurt badly affects me strongly.

18. When I'm feeling well it's easy for me to go from being in a good mood to being really joyful.

19. "Calm and cool" could easily describe me.

20. When I'm happy I feel like I'm bursting with joy.

21. Seeing a picture of some violent car accident in a newspaper makes me feel sick to my stomach.

22. When I'm happy I feel very energetic.

23. When I receive an award I become overjoyed.

24. When I succeed at something, my reaction is calm contentment.

25. When I do something wrong I have strong feelings of shame and guilt.

26. I can remain calm even on the most trying days.

27. When things are going good I feel "on top of the world."

28. When I get angry it's easy for me to still be rational and not overreact.

29. When I know I have done something very well, I feel relaxed and content rather than excited and elated.

30. When I do feel anxiety it is normally very strong.

31. My negative moods are mild in intensity.

32. When I am excited over something I want to share my feelings with everyone.

33. When I feel happiness it's a quiet type of contentment.

34. My friends would probably say I'm a tense or "high-strung" person.

35. When I'm happy I bubble over with energy.

36. When I feel guilty this emotion is quite strong.

37. I would characterize my happy moods as closer to contentment than to joy.

38. When someone compliments me, I get so happy I could "burst."

39. When I am nervous I get shaky all over.

40. When I am happy the feeling is more like contentment and inner calm than one of exhilaration and excitement.

PANAS

Instructions: This scale consists of a number of words that describe different feelings and emotions. Read each item and select the appropriate number to that word. Indicate **to what extent you generally feel this way in the LAST SIX MONTHS**, that is, how you feel on average.

1 = not at all	**2 = a little**	**3 = moderately**	**4 = quite a bit**	**5 = a lot**

_____interested	_____irritable
_____distressed	_____alert
_____excited	_____ashamed
_____upset	_____inspired
_____strong	_____nervous
_____guilty	_____determined
_____scared	_____attentive
_____hostile	_____jittery
_____enthusiastic	_____active
_____proud	_____afraid

Procedural Justice

Instructions: The following items refer to the procedures used in your organization to arrive at your outcome, such as performance rating and promotion. Thinking about a time when you receive some outcomes from your organization, to what extent, do you agree the following statements?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. I am able to express my views and feelings during those procedures.
2. I have influence over the outcomes arrived at by those procedures.
3. Those procedures are applied consistently.
4. Those procedures are free of bias.
5. Those procedures are based on accurate information.
6. I am able to appeal the outcome arrived at by those procedures.
7. Those procedures uphold ethical and moral standards.

Distributive Justice

Instructions: The following items refer to the procedures used in your organization to arrive at your outcome, such as performance rating and promotion. Thinking about a time when you receive some outcomes from your organization, to what extent, do you agree the following statements?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. My outcome reflects the effort I have put into my work.
2. My outcome is appropriate for the work I have completed.
3. My outcome reflects what I have contributed to the organization.
4. My outcome is justified given my performance.

Interpersonal Justice

Instructions: The following items refer to your direct supervisor who enacts the procedure to reach outcomes in your organization. Think of a time when you receive some organizational outcomes from your direct supervisor. To what extent, do you agree the following statements about your direct supervisor?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. My direct supervisor treats me in a polite manner.

2. My direct supervisor treats me with dignity.

3. My direct supervisor treats me with respect.

4. My direct supervisor refrains from improper remarks or comments.

Informational Justice

Instructions: The following items refer to your direct supervisor who enacts the procedure to reach outcomes in your organization. Think of a time when you receive some organizational outcomes from your direct supervisor. To what extent, do you agree the following statements about your direct supervisor?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. My direct supervisor is candid in his/her communications with me.

2. My direct supervisor explains the procedures thoroughly.

3. My direct supervisor explains the procedures reasonable.

4. My direct supervisor communicates details in a timely manner.

5. My direct supervisor seems to tailor his/her communications to individuals' specific needs.

Empathy

Instructions: To what extent do you agree the following statements about your direct supervisor?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. My direct supervisor values others as individuals.
2. My direct supervisor feels emotions that other people experience.
3. My direct supervisor makes others feel understood.
4. My direct supervisor shares others' feelings of happiness.
5. My direct supervisor encourages others to talk about how they feel.

Affective Commitment

Instructions: To what extent do you agree the following statements about you and your organization?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. I would be very happy to spend the rest of my career with this organization.
2. I enjoy discussing my organization with people outside it.
3. I really feel as if this organization's problems are my own.
4. I think that I could easily become as attached to another organization as I am to this one. *
5. I do not feel like 'part of the family' at my organization. *
6. I do not feel 'emotionally attached' to this organization. *
7. This organization has a great deal of personal meaning for me.
8. I do not feel a strong sense of belonging to my organization. *

*Reversed coded items.

Continuance commitment

Instructions: To what extent do you agree the following statements about you and your organization?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. I am not afraid of what might happen if I quit my job without having another one lined up. *

2. It would be very hard for me to leave my organization right now, even if I wanted to.

3. Too much in my life would be disrupted if I decided I wanted to leave my organization now.

4. It wouldn't be too costly for me to leave my organization now. *

5. Right now, staying with my organization is a matter of necessity as much as desire.

6. I feel that I have too few options to consider leaving this organization.

7. One of the few serious consequences of leaving this organization would be the scarcity of available alternatives.

8. One of the major reasons I continue to work for this organization is that leaving would require considerable personal sacrifice — another organization may not match the overall benefits I have here.

*Reversed coded items.

Continuance commitment

Instructions: To what extent do you agree the following statements?

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. I think that people these days move from company to company too often.
2. I do not believe that a person must always be loyal to his or her organization. *
3. Jumping from organization to organization does not seem at all unethical to me. *
4. One of the major reasons I continue to work for this organization is that I believe that loyalty is important and therefore feel a sense of moral obligation to remain.
5. If l got another offer for a better job elsewhere I would not feel it was right to leave my organization.
6. I was taught to believe in the value of remaining loyal to one organization.
7. Things were better in the days when people stayed with one organization for most of their careers.
8. I do not think that wanting to be a 'company man' or 'company woman' is sensible anymore. *

*Reversed coded items.

LMX

Instructions: Please respond to the following question about your and your direct supervisor.

Rarely	Occasionally	Sometimes	Fairly Often	Very Often
1	2	3	4	5

1. Do you usually know how satisfied your direct supervisor is with what you do?

Not a Bit	A Little	A Fair Amount	Quite a Bit	A Great Deal
1	2	3	4	5

2. How well does your direct supervisor understand your job problems and needs?

Not at All	A Little	Moderately	Mostly	Fully
1	2	3	4	5

3. How well does your direct supervisor recognize your potential?

None	Small	Moderate	High	Very High
1	2	3	4	5

4. Regardless of how much formal authority he/she has built into his/ her position, what are the chances that your direct supervisor would use his/ her power to help you solve problems in your work?

5. Again, regardless of the amount of formal authority your direct supervisor has, what are the chances that he/she would "bail you out," at his/ her expense?

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

6. I have enough confidence in my direct supervisor that I would defend and justify his/ her decision if he/she were not present to do so?

Extremely Ineffective	Worse than Average	Average	Better than Average	Extremely Effective
1	2	3	4	5

7. How would you characterize your working relationship with your direct supervisor?

APPENDIX E

INSTITUTIONAL REVIEW BOARD APPROVAL

Pilot Study

NOTICE OF APPROVAL

Date: April 22, 2009

To: Lei Qin
27621 Chagrin Blvd., Apt. 209
Woodmere, Ohio 44122

From: Sharon McWhorter, IRB Administrator

Re: IRB Number 20090408 "*Memory and Leadership Rating*"

Thank you for submitting your IRB Application for Review of Research Involving Human Subjects for the referenced project. Your application was approved on April 22, 2009. Your protocol represents minimal risk to subjects and matches the following federal category for exemption:

☐ **Exemption 1** - Research conducted in established or commonly accepted educational settings, involving normal educational practices.

☒ **Exemption 2** - Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior.

☐ **Exemption 3** - Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior not exempt under category 2, but subjects are elected or appointed public officials or candidates for public office.

☐ **Exemption 4** - Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens.

☐ **Exemption 5** - Research and demonstration projects conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine public programs or benefits.

☐ **Exemption 6** - Taste and food quality evaluation and consumer acceptance studies.

Annual continuation applications are not required for exempt projects. If you make changes to the study's design or procedures that increase the risk to subjects or include activities that do not fall within the approved exemption category, please contact me to discuss whether or not a new application must be submitted. Any such changes or modifications must be reviewed and approved by the IRB prior to implementation.

Please retain this letter for your files. If the research is being conducted for a master's thesis or doctoral dissertation, the student must file a copy of this letter with the thesis or dissertation.

☒ Approved consent form/s enclosed

Cc: Robert Lord - Advisor
Cc: Stephanie Woods - IRB Chair

Office of Research Services and Sponsored Programs
Akron, OH 44325-2102
330-972-7666 • 330-972-6281 Fax

Focal Study

NOTICE OF APPROVAL

Date: October 20, 2009

To: Lei Qin
27621 Chagrin Blvd., Apt. 209
Woodmere, Ohio 44122

From: Sharon McWhorter, IRB Administrator

Re: IRB Number 20091009 "*A New Trust in Leadership Framework: A Cognition-Based and Relationship-Based Process*"

Thank you for submitting your IRB Application for Review of Research Involving Human Subjects for the referenced project. Your application was approved on October 20, 2009. Your protocol represents minimal risk to subjects and matches the following federal category for exemption:

☐ **Exemption 1** - Research conducted in established or commonly accepted educational settings, involving normal educational practices.

☒ **Exemption 2** - Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior.

☐ **Exemption 3** - Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior not exempt under category 2, but subjects are elected or appointed public officials or candidates for public office.

☐ **Exemption 4** - Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens.

☐ **Exemption 5** - Research and demonstration projects conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine public programs or benefits.

☐ **Exemption 6** - Taste and food quality evaluation and consumer acceptance studies.

Annual continuation applications are not required for exempt projects. If you make changes to the study's design or procedures that increase the risk to subjects or include activities that do not fall within the approved exemption category, please contact me to discuss whether or not a new application must be submitted. Any such changes or modifications must be reviewed and approved by the IRB prior to implementation.

Please retain this letter for your files. If the research is being conducted for a master's thesis or doctoral dissertation, the student must file a copy of this letter with the thesis or dissertation.

☒ Approved consent form/s enclosed

Cc: Robert Lord - Advisor
Cc: Stephanie Woods - IRB Chair

Office of Research Services and Sponsored Programs
Akron, OH 44325-2102
330-972-7666 • 330-972-6281 Fax