

Understanding the Dimensions of Trust in Public Relations and Their Measurements

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DEDICATION

I dedicate my work to my Father, Youngsam Park, my Mother Kisun Cho,
and my brother Joomin Park for their strong supports and thick trust.

And I always love my daughter, Sejin.

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My life never has been this serious.

My life never has been this intense.

My life never has been this hard.

And I confess...

My life never has been this lazy.

I thank my advisor, Dr. Candace White
for her thoughtful support that helps me to overcome all these.

And I thank all my committee members, Dr. John Lounsbury, Dr. Carol Tenopir,
and Dr. Elizabeth Avery for their supports that help me to overcome all these.

Now I believe I am ready to help others as I am helped.

ABSTRACT

Trust judgment of an organization's publics validates the existence of an organization as well as being one of the most powerful moderators of public relations effectiveness. The ideas of trust as one of the key dimensions to explain relational status between an organization and its key publics has been around more than a decade. Over the last two decades, the idea of trust in fact has been showing rising prominence across many diversified studies of relationship and relationship management. In relationship management, one of the important goals of public relations is to build mutually beneficial relationships among organizations and their publics. Hence, to provide a useful indicator of success or failure of building mutually beneficial relationships through various public relations activities, it becomes necessary to measure the quality of relationships using a key factor of relationship, trust.

Based on the discussed ideas, this study attempts to measure the quality of relationships utilizing the ideas of trust as a key conceptual dimension of the behavioral aspect of public relations. Through the Phase 1 (model development) and Phase 2 (model validation), this study provided evidence of an existence of a conceptual structure of trust from a perspective of relationship management. The fit indices obtained from the model building and validation processes also suggests a fair fit of the studies constructs and dimensions in the given model design.

This approach will not only help to extend the range boundary of current measurement tools in public relations practices, but also contribute to the understanding of what constitutes a good or a better relationship with publics for scholars and practitioners.

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CHAPTER 1

INTRODUCTION

Introduction

One of the greatest legacies to modern Eastern and Western culture is *The Art of War* completed by *Sun Tzu* in 500 B.C. Although historians debate about whether or not he was a real historical figure, it is un-doubtable that his mastery provides a conceptual background for many diverse uses and fields, from military theorists, political leaders, and even business management. It is a common misconception that *The Art of War* is primarily a philosophical treatise on war strategy in a broad fashion; in fact, his work is vastly landscaped in many diverse disciplines. It not only outlines theories of battle, but also demonstrates how diplomacy and the cultivation of relationships with other entities are essential to the health of any state or organization.

One of the most useful contributions of *Sun Tzu's* work is the distinction he draws between grand strategy, strategy, and tactics. This distinction has been implemented as a conceptual framework to guide modern strategic practices of many diverse disciplines, including public relations. For example, Botan (2006) is one public relations scholar who describes public relations as a process that involves planning on three distinctive levels of grand strategy, strategy, and tactics. His analog to *Sun Tzu's* grand strategy is organizational or industry-level policies. Grand strategy, according to Botan, involves a synthesis of considerations across six dimensions, including organizational goals, changes, public, issues, communication, and public relations practitioners. Beneath this grand strategy, Botan describes another inter-connected layer of strategic planning. From the perspective of resource management, for example, this would be the work of

campaign planning and evaluation. Finally, Botan describes another level of public relationships work as tactical--e.g. the generation of messages by technicians.

These classifications are particularly useful when we think about where public relations works is situated within society. From a sociological and public relations perspective, society is composed of different dimensions--the international environment, the society, the public, and the organization. In each dimension, there are various types of actors with their own competing interests. Each dimension presents a different constellation of environmental factors and issues, and these circumstances produce distinctive types of power dynamics. In this dynamic conception of society, public relations specialists are charged with managing the conflicts, issues, crises, and risks to which their organizations are exposed on every level. These efforts may extend to management functions regarding reputation and relationships (Grunig, J., 1993). However, the scope of public relations has been a long-argued theme among practitioners and academicians throughout the discipline's history. One might argue that the reason this debate has persisted is that the debaters have tended to focus on what public relations practitioners do rather than on what the field of public relations actually is.

Only recently have public relations experts in academia and industry taken on the challenge of defining what public relations actually is (Ledingham, 2003). As a part of this effort, many practitioners and academicians have paid attention to the tricky issue at the heart of the debate: the relationship between public relations itself and trust that the practice has to achieve. However, the concept of "trust" has itself proven to be just as problematic as the definition of public relations. Until we can illuminate and analyze this

concept, it will be difficult to make the next step toward defining what exactly constitutes the work of public relationship. In response to this need, the dissertation proposed here will focus conceptually on the idea of trust as a critical factor that constitutes public relations. If, as many skeptics argue, "trust" and "public relations" are both equally abused words, this points to the problem that many people do not value the work of public relations on its face value. There must be a conceptual gap between what public relations experts do and how ordinary people can see that work. If so, perhaps the missing link is the concept of trust between the practice itself and ordinary people. If we can analyze and quantify this amorphous concept that lies at the heart of the work of public relations, we may be able to help relevant stakeholders understand both what public relations is and why it is valuable. Thus, the dissertation proposed here will be devoted to developing a scale to analyze and measure trust.

Background

Grunig's Communication Excellence and Habermas's Public Sphere

As James E. Grunig noted (2006), public relations has to deal not only with the negotiation of meaning, but also with the negotiation of behavior. This negotiation concept becomes more complicated when public relations take place among conflicting interests at various levels of society. In many cases, public relations strives to achieve its goals while taking into account the pluralistic interests of diverse sub groups and members within a given social context.

The pluralistic interests and diversity of society have been the objects of intense study for many philosophers, including Jürgen Habermas. To reconcile his recognition of the diversity of society with his interest in uncovering the universal communication processes guiding human understanding, Habermas developed the paradigm of the public sphere (Burkart, 2009). The Habermasian paradigm of the public sphere denotes the conflicting entities of society by means of two separate sub-concepts: the life-world, which is represented by the rationality of an organization's public, and the system, which is represented by organizations (Habermas, 1981). Habermas' conceptualization of the public sphere was born of his core normative ideas about the nature of democracy. By his definition, the public sphere exists whenever people communicate through symbols to express their opinions, with a system to raise rational discussions, or communicative action (p. 109). A central idea in his discussion of the public sphere concerns the achievement of "inter-subjectivity", or agreement (p. 307). He believed that social life fundamentally can be explained in term of the ability of participating actors to communicate and to use speech to convey their own rationalities to achieve the inter-subjectivity (Burkart, 2009). Thus understanding became a critical byproduct of his central idea of communicative action (Habermas, 1981).

According to the public-relations conception of excellence and its symmetrical perspective, the prerequisite of common understanding plays a major role when an organization identifies its key publics. Especially in situations with a high chance of conflict, organizations are forced to present acceptable arguments to communicate their interests and ideas to help targeted publics to understand their interests (Burkart, 2009).

Understanding, as a type of reaction to communication, from Habermas's (1981) perspective, is an "action that validates claims of trust" in a given communication process (p. 146). The claims that have to be validated through the process of communicative action are "truth of what's being said," "truthfulness of how it is said," and "legitimacy of interests residing within such contents" (p.146-147).

According to the public relations conception of excellence and symmetrical perspective, stable, open, and trusting relations are emphasized as a set of core value by means of a symmetrical approach, which promotes mutual understanding (J. E. Grunig, 2006). In contrast, for imbalanced relationships with a sense of manipulation of the public, an asymmetrical model works (J. Grunig, 1993). As J. Grunig criticizes, many of public relations practitioners are preoccupied with the concept of (manipulative) images, so that public relations is primarily concerned with symbolism. As an extension of this thought, J. Grunig (2006) further argues that paradigmatic arguments have arisen between those public relations experts who see their work as a quest for positive images and those who focus on building substantive behavioral relationships, arguing that symbolism not only makes little significant contribution to an organization, but also blurs the identity of "image as symbol" and "behavior as substance" (p. 121).

To this phenomenon, Grunig et al. (2002) suggested that it is required to have "a unique management function" that helps to build public relations as a function that balances the interests of organizations and publics (p. 55). The value of public relations, according to Grunig et al (2002) in the Excellence Study, comes from the relationships that organizations develop and maintain with publics. This study also showed that the

quality of relationships results more from the behavior of the organization than from the messages that communicators disseminate. Ferguson (1984) suggested useful attributes to define and measure the quality of relationships with strategic publics. These attributes include the dynamic nature of relations, openness, degree of satisfaction, and power distribution. To these, Grunig (1993) added reciprocity, trust and credibility, and congruence to social values and organizational action. As noticed, all these attributes are coined to clarify the behavioral consequence of communication. Such measurable attributes in public relations practices have begun to receive greater attention as concepts guiding relationship management and have become a general theory of public relations (Ledingham, 2003; Ki & Childers, 2007).

Conceptual Framework

Trust and public relations

In reality, the trickiest relationship at the center of public relations is the relationship between the practice on public relations and trust (Moloney, 2005, p. 550). As Moloney has claimed, “trust” and “public relations” are two much “abused words” in “an estranged relationship” (p. 550). The claim is particularly true when we observe that people outside of the public relations discipline do not readily recognize any connection between trust and public relations. Are these concepts not aligned in numerous arrays of published public relations research and principles of public relations practices? Have we found not, in prominent public relations cases such as the Enron and WorldCom collapses, that trust is a key issue? It may not take much effort to find a separation of

trust and public relations in the ways that outsiders to the discipline conceptualize public relations.

To understand the separation, it is important to understand what public relations could be in the environment where most of us live. Public relations in fact has been taken as one of the various forms of self-presentation for attention and advantage (Moloney, 2005). Compared to other forms of self-presentation, public relations, in most of the cases, takes place in the midst of a competitive social environment of accelerated pluralism. Moreover, it has become a communicative resource for numerous entities--some good and some bad--including businesses, voluntary bodies, charities large and small, and even liberation or terrorists groups. Public relations is used by all such groups “to give voice to their interests in a competitive struggle for marginal advantages in terms of more material, ideological, policy, or reputational resources” (p. 551). In fact, as Wernick (1991) claimed, all these communicative actions are self-advantaging. As a consequence, public relations, as one of multiple forms of communicative flow, distances itself from the issue of trust when it voices diverse entities’ self-advantaging interests. Susskind and Field (1996) contended that the public became “angry” when business and government leaders “covered up mistakes, concealed evidences of potential risks, made misleading statements, and often lied” (p. 1). This happens because public relations is often a voice that is assertive in either a defensive or offensive way, often to a competitive point, and has often been persuasive by intent (Moloney, 2005). As a result, public relations has slipped into being an instrument of a communicative advantage, rather than a promoter of symmetries in communicative relationships.

Need for and Importance of Trust in Public Relations

Trust is a fragile human feeling by its own nature. When connected with social capital or a network of supportive people, however, it is one of the most mysterious expectations human beings may have, that others will treat us supportively in the future because they have done so in the past. Trust is also an index of social cohesion, a quality that keeps various entities and individuals of society together on a common ground rather than focusing on that which separates them. Trust is also important in our current society of accelerated pluralism. It is the gift that is given by public relations message recipients; it is not a gift that is endowed by public relations practitioners (Moloney, 2005). Therefore, public relations practitioners cannot demand or insist on it. In every single public relations claim, what brings trust is behavior as a substance, not the message as a symbol. This is hopeful because the “otherness” of public relations could also contribute to making an indirect support to trust (p. 552). In the process of settlement of any conflicting interests in society where public relations becomes involved, “trust-creating conditions of mutual tolerance and understanding” may appear because of the observed behavior, not the message itself, of the public relations message sender, the one-to-be-trusted in the scene (p. 552-553).

Purpose of This Dissertation

One of the important goals of public relations is to build mutually beneficial relationships among organizations and their publics. Hence, to provide a useful indicator of success or failure of various public relations activities, it evidently becomes necessary to measure the quality of relationships. In the discussion of strategic relationship

management, however, it has been reported that relationships as a central theme of the field is (1) seldom even defined, and (2) there is essentially no substantive research in the field of public relations regarding the measurement of relationships (Pavlik, 1987; Broom et al., 1997). Following from that, it becomes important to measure the success or failure of relationship management as a part of public relations based on behavioral outcomes “instead of counting news clippings”, which has been a common way that the perception and behavior of key publics are assessed in modern public relations academia and practices (Brunig & Ledingham, 1999, p.159). Also needed are generally critical changes in the stance that public relations experts take when they measure public relations effectiveness. We need to shift from being watchdogs over information flow to focusing on how organizational communication changes key publics’ perceptions and how it influences the publics’ attitude and behavior (Ki & Childers, 2007).

Over the last two decades, the idea of trust has had rising prominence across many diversified studies of relationship and relationship management. As Lisa A. Grunig et al. (1992) emphasized, a public's sense of ideas of trust validates the existence of an organization as well as being one of the most powerful moderators of public relations effectiveness in conflict-raising situations (Huang, 2001). In their study of the dimensions of relationships, Ledingham and Brunig (1998) use the ideas of trust as one of their key dimensional components. L. Grunig et al. (1992) also chose the ideas of trust as one of the key dimensions to explain relational status between an organization and its key publics. Hon and J. Grunig (1999) also picked trust as a resultant behavioral disposition of the public under well-established relationships. Furthermore, when public

relations practitioners seek behavioral outcomes instead of outputs of the communication activities, it is impossible not to emphasize the importance of trust for engendering cooperation and effective communication that lay a foundation for cohesive and productive relationships (Baier, 1986).

Based on the previous discussions, it is important to focus on the quality of relationships utilizing the ideas of trust as a key conceptual dimension of the behavioral aspect of public relations. This approach will not only help to extend the range boundary of current measurement tools in public relations practices, but also contribute to the understanding of what constitutes a good or a better relationship with publics for scholars and practitioners.

Limitations of the OPRA Relationship Measurement Scale

In fact, various studies measuring the quality of relationships in public relations have been done. However, treating a relationship as a unit of study leaves room to reconsider its basic assumptions. When measuring relationships, many studies using relationships as a dependent variable assume that the conceptual components known to be relevant to relationship building or relationship indicators (as independent variables) are supposed to have the same reliability level. Technically speaking, since each component of relationship measurement studies has its own identity, property, and contribution, achieving the same level ground of reliability is almost impossible. Moreover, conceptual components employed to measure relationship quality largely depend on context because everything in human perception and behavior is basically contextual. As Ledingham and Brunig (1999) note, documenting cause-and-effect relationships is

difficult when dealing with complicated human behavior. Therefore, the biggest challenge in measuring relationships is to know how reliable and valid the conceptual components of relationship measures are and how we can select components from relationship attributes. As another obstacle, many relationship studies that attempt to measure the degree of relationships are relying on previous literature, some of which is outdated, especially in light of the current plethora of information. Therefore, it is important to have a specific measurement scale that is not simply putting all the conceptual components from previous research together on the same level ground with equal reliability assumptions. In doing so, there have been no attempts to distinguish the significance of the contribution of each component to the construct. For instance, Huang's (2001) Organization-Public Relationship Assessment (OPRA) scale uses control mutuality, trust, relational satisfaction, and relational commitment from Western literature along with the concepts of favor and face from Eastern culture to test organization-public relationships as if all components are equally contributing to the relationship-building process. Although the study offers a significant contribution in measuring the quality of relationships, the study, resulting from that assumption, never reveals which component has a greater influence on the relationship evaluations compared to the study's other conceptual components. Moreover, covering the contextual and, more importantly, dynamic nature of relationship with a limited scope of scale items is difficult.

Regarding its importance in many diverse discussions of relationship studies and previous relationship measurement studies' limitations, trust can become a reliable

indicator in measuring the quality of relationships. This is the case not only because of a noticeable redundancy in many relationship studies and relationship management, but also because of the attention many scholars have paid recently to demonstrating how important the idea can be in understanding and diagnosing the status of relationships between organizations and their key publics. Therefore, to contribute to academia and practices, this dissertation will focus on the concept of trust and its measurement scale development.

CHAPTER 2

THEORETICAL FRAMEWORK FOR TRUST INDEX DEVELOPMENT IN RELATIONSHIP MANAGEMENT

Relationship and Public Relations

Public relations has been understood in various ways, because its contribution and functionalities have been widely, and even wildly, defined and utilized in various forms of practices throughout its history. This also means there has been no true convergence in its definition (Hutton, 1999). In the late 90s, the rise of terms such as “reputation management,” “perceptions management,” or “image management” became a trend, a trend that actually reflected vulnerable and subordinating roles of public relations in that era. As the ideas of public relations have progressed over time, a large body of theories has been made to better understand public relations and its definitions. For the understandings, three critical dimensions of public relations have been formed (Grunig & Hunt, 1984). Those dimensions are “interests,” “initiative,” and “image” (Grunig & Hunt, 1984; Hutton, 1999). Each of the dimensions are answering the questions; “To what degree is the public relations function focused on client interests versus the public interests?” “To what extend is the public relations function reactive versus pro-active?”, and “To what extend is the organization focused on perception versus reality (or image versus substance)?” respectively (Hutton, 1999, p. 204). By following the three dimensions, six distinctive orientations (or models) of public relations have appeared: “persuasion, advocacy, public information, cause-related public relations, image/reputation related, and relationship management (p. 205).” Among the

orientations, relationship management refers to the practice of public relations as an exercise in identifying mutual interests, values and benefits between an organization and its publics (Grunig & Hunt, 1984; Hutton, 1999). In this idea, public support and consent become vital with the emphasis on mutual trust, compromise, cooperation, and win-win-situations (Hutton, 1999, p. 208).

In terms of relationship management, as a more pro-active perspective, public relations is understood as a management function that establishes and maintains a mutually beneficial relationship between an organization and its publics (Cutlip, Center, & Broom, 1994). This perspective is consistent with system theory and the two-way symmetrical model (Ledingham, 2003). Grunig (2006) noted that stable, open, and trusting relations promote mutual understanding, which is the backbone of public relations excellence and symmetry approach. As the ideas of stable, open, and trusting relations have a certain level of consistency with symmetry approaches, they also have a relation with key publics' understanding, a key ingredient in Habermas's public sphere ideas. From the perspective of seeking mutual understanding, the relational concepts in public relations are said to shift focus from "what it does" to "what it is" (Ledingham & Brunig, 1998, p. 56).

Contribution of Relational Concepts

The key purpose of relationship and relationship management, according to Center and Jackson (1995), has been "to attain positive public relationships" (p. 2). The relational concepts that an organization holds with its key publics are found in many different applications of public relations practices, such as public affairs (Ledingham,

2000), crisis management (Coombs, 2000), issues management (Bridge & Nelson, 2000), and community relations (Wilson, 2000). Such applications encompass almost all major concepts of current public relations practices. Even with such prevalence of relationship perspectives, it is difficult to overstate relational concepts' importance to public relations because relationships with key publics in an organization's given environment affect the organization itself and its mission (Dozier, 1995). Furthermore, the relational perspective shifts a focus of validating public relations effectiveness from measures of communications output to behavioral outcomes (Broom & Dozier, 1990). The idea of relationship perspective is also said to clarify the organizational function of public relations and communications' role within that function (Ledingham & Bruning, 1998; Ledingham & Bruning, 2000). Moreover, this relationship perspective is consistent with the public relations' initiatives of generating mutual understanding and beneficial mutual relations that are stated in symmetry models and public relations excellence (Grunig & Hunt, 1984; Ledingham & Bruning, 2001).

Definition, Dimension, and Types of Organization-Public Relationship

Regarding the importance of relational concepts, not many solid definitions of *relationship* both in public relations academia and practices exist. In the late 1990s, public relations scholars paid substantial attention to that lack of definition. In response, Ledingham and Brunig (1998) offered this definition: "an existence between an organization and its key publics that affect the economic, social, cultural, and political well-being of others" (p. 62). As a refinement, Broom et al. (2000) suggested transactional ideas in relationships promoting resources exchange and leading to mutual

benefit and achievement. As a further refined strategic definition, Hung (2005) added key conceptual components, such as interdependence and its consequence of constantly managing organizations and their key publics. Hung's ideas of interdependence are developed from system theory and from interpersonal and organizational communication perspectives. In social systems and social interactions, according to Pfeffer and Salancik (1978), interdependence becomes important when one party is unable to control all the conditions to achieve both parties' desired outcomes. In fact, relationship dimensions actually come from many different fields, such as interpersonal communication, marketing, and social psychology. (Table 1 summarizes the dimensions in previous relationships studies from different fields.)

As the definitions have developed from multidisciplinary perspectives, relationship dimensions in public relations also have a wide scope. Broom and Dozier (1990) studied a hypothetical relationship of levels of agreement between organizations and publics on key issues to predict both parties' positions. In the study, they found that agreement levels helped to predict positions of an organization and its publics, and that concepts, agreement and position worked as indicators of relationship state. Moreover, L. A. Grunig et al. (1992) suggested that relationship state can be further explained by the dimensions of reciprocity, trust, mutual legitimacy, openness, mutual satisfaction, and mutual understanding. Ledingham and Brunig (1998) also culled the five dimensions of relationship— trust, openness, involvement, investment, and commitment— and studied the link between these five dimensions and public perception, attitude, and choice behavior. The research demonstrated that relationship value, using the five dimensions,

will work as a predictor of public disposition, behavior (Ledingham & Brunig, 2000), and satisfaction (Ledingham & Brunig, 1998). Hon and J. E. Grunig (1999) also suggested access, positiveness, openness, assurance, networking, and task sharing as strategic elements to maintain the organization-public relationship. As a result of those strategic elements, these researchers also regarded mutual control, trust, satisfaction, and commitment as the relationship outcomes.

Relationship Management

Such diversity in definitions and relationship dimensions actually has helped public relations to position itself differently with business orientation than other relevant fields, such as advertising, marketing, or even journalism (Ledingham & Brunig, 1999). Historically rooted in journalism, public relations has evolved to include activities such as publicity, advertising, public affairs, issues management, investor relations, and lobbying (Brunig & Ledingham, 1999). Examination of relationship has “emerged as a critical conceptual component” in public relations scholarship (p. 158). The relationship management perspective not only has potential to serve as a platform to guide theoretical and practical development, but also provides evaluation methods consistent with the “management approaches” (p. 158). Moreover, this perspective shifts the practice of public relations from manipulating public opinion to building and nurturing behavioral consequences (Ehling, 1992). Furthermore, the relationship management perspective allows academicians and practitioners to use quantitative evaluation methods to track relationship changes over time (Brunig & Ledingham, 1999). In other words, key publics’ perception of and behavior toward a given relationship are taken into account to measure

success or failure of public relations' activities "instead of counting news clippings" (p.159). Ledingham (2003) further argued that the relationship management perspective satisfied qualities for being a general theory. Basically, relational concepts' evolution to the relationship management perspective, including promotion to a general theory, provides a framework for academicians and practitioners that public relations could respond to "functional imperatives of organizations, publics, and society in general" (Ledingham, 2003, p. 194). (Table 1.)

Table 1. Dimensions, Types, and Indicators of Organization-Public Relationships

	Dimensions	Types	Relationship State: Indicators and Contributors
Ledingham (2003)	Trust Openness Credibility Emotion Similarity Immediacy Agreement Accuracy Common Interest Relational history	Symbolic Behavioral Personal Professional Community	Communication Frequency Complexity Access Use Perception of: Personal relationship Professional relationship Community relationship Problem recognition Needs fulfillment Goal sharing and reciprocity
L. Grunig et al. (1992)	Reciprocity Trust Mutual legitimacy Openness Mutual satisfaction		Mutual legitimacy Satisfaction and benefit Consensus Accuracy Social exchange Transactions
Ledingham & Brunig (1998)	Trust Openness Involvement Investment Commitment		Submissiveness Formalization and standardization Symmetry and intensity Duration, valence, and content Information resource and flow
Hon & J. Grunig (1999)	Access Positiveness Openness Assurance Networking Sharing of tasks		
Huang (2001)	Control mutuality Trust Relational satisfaction Relational commitment Face (Oriental concern)		

Trust in Relationship Management

As the relationship management perspective comes to the attention of academia and practices, many studies about the relational concepts' dimensional components have been fruitful. Trust, as one of the dimensional components of relational concept, shows its greater presence across almost all public relations practices, compared to the presence of reputation and credibility, as well as in other disciplines such as interpersonal communication, marketing, and social psychology. Trust apparently has long been studied in many diverse disciplines, including economics, marketing, political science, social psychology, management science, organization studies and education.

Historically, traditional management practices of marketing and other fields have tended to emphasize social distance and divergent interests among competing parties; therefore, they have engendered distrust or a low expectation of responsiveness on the other parties (Zand, 1971). Trust has become a fundamental function as our society has grown more complex and independent. Trust is a function of reducing uncertainty (Holmes & Rempel, 1989). Trust is also a necessary factor engendering cooperation and effective communication as well as a foundation of cohesive and productive relationships in organizations (Baier, 1986). Moreover, trust reduces the complexities in transactions and exchanges far more quickly and economically than other means of managing organizational life (Powell, 1990). Fundamentally, the increased complexity in life and quickly changing economic realities and expectations in society have made life less predictable; and as new forms of information dissemination have increased both desire for and availability of negative information, we obviously start to notice trust more than

ever before (Moran-Tschannen & Hoy, 2000). Furthermore, negative information's increased availability has produced a negative perception of organizations' contributions to society and has led to increasing "distrust of organizations and their missions" (p. 571).

To overcome the barriers distrust creates, public relations must respond to functional imperatives of organizations, publics, and society in general (Ledingham, 2003). One response is to build and manage positive relationships between organizations and their key publics based on trust. L. Grunig et al. (1992) emphasized the importance of trust, inasmuch as public trust enables an organization to exist. Trust is actually one of the most influential moderators of the effect of public relations between an organization and its publics (Huang, 1999; Huang, 2001).

Trust

Hoffman et al. (1998) asserted that the most effective way for commercial web site providers to develop profitable relationships with their customers is to win their trust. Gambetta argued in his book, *Trust: Making and Breaking Corporate Relationships* (1988), that trust is inherently elusive and complex because (1) different scholars have suggested different meanings for trust as having multi-dimensional characteristics; and that (2) trust only can be defined by multiple levels of analysis such as relationship holders (ex. individual or a corporate entity) and nature of relationships such as formal versus informal relationships. Hence, researchers in various fields have defined trust in various ways, and each of the definitions emphasizes a unique aspect of trust depending on diverse contextual factors (Lee, 2002). For instance, in developmental psychology, trust is the relationship itself between mother and an infant (Erikson, 1950). Economists

conceptualize trust as one's cooperation with a partner for whom the benefits of trusting would exceed the costs (Gambetta, 1990; Nooteboom, Berger, & Noorderhaven, 1997). Other scholars conceptualized trust, as a rational prediction and expectation based on past evidence of reliability and consistency, and on the expectation of future benefits from the relationship (Zaltman & Moorman, 1988). Young and Wilkinson (1989) added role performance and fiduciary responsibility to Zaltman and Moorman's definition, although such trust will easily be found in professional relationships. Trust, according to Mayer et al. (1995), also has been defined as a party's willingness to be vulnerable to another party's actions. After in-depth review of previous trust related studies, Rousseau et al. (1998) summarized a common theme that has been found across many disciplines: "trust is a psychological state comprising the intention to accept vulnerability based on positive expectations of the intentions or behaviors of another" (p. 395). Zand (1972) and Sonnenberg (1994) also suggested that trust is voluntary faith in a partner's integrity that the other party will not take advantage of the trustor's vulnerability. Table 2 summarizes the previous trust-measurement studies.

Table 2. Previous Measures of Trust

Instrument	Items	Facets
<i>Behavioral measures</i>		
Deutsch (1958)	Experimental measure	Cooperation
Cash, Stack, & Luna (1975)		Benevolence, Openness
<i>Generalized trust</i>		
Interpersonal trust scale (Rotter, 1967)	40	Skepticism about politicians; interpersonal exploitation; societal hypocrisy; reliable role performance (Chun & Campell, 1974)
Trust-Suspicion scale (Heretic, 1981)	6	Trust, suspicion
<i>Organizational trust</i>		
Trust in employer (Athos & Gabarro, 1978)	7	Integrity, consistency, benevolence, fairness, & openness
Interpersonal trust at work (Cook & Wall, 1980)	12	Reliability; capability with reference to (a) peers or (b) management
Trust measures (Scott, 1981)	17	Immediate supervisor, work unit, top management, consultant
Conditions of trust inventory (Butler, 1992)	44	Availability, competence, consistency, discreteness, fairness, integrity, loyalty, openness, trust, promise fulfillment, receptivity
Organizational trust (Cummings & Bromily, 1996)	12/62	Keeps commitment; negotiates honestly; avoids taking excessive advantage
Trust survey (Shaw, 1997)	32	Trust, results, integrity, concern
Trust in schools (Hoy & Tschannen-Moran, 1999)	35	Willingness to be vulnerable, benevolence, reliability, competence, honesty, & openness

Cost of Distrust

As trust declines, the costs of doing business increase because people must - protect themselves and continually make provisions for the possibility of others' opportunistic behavior (Limerick & Cunnington, 1993). Distrust also provokes feelings of anxiety and insecurity, causing people to feel uncomfortable and to spend their energy on monitoring other people's behavior and possible motives (Fuller, 1996; Govier, 1992). Distrust also impedes the communication that could overcome people's suspicions of distrusted counterparts. Consequently, refutation by evidence becomes the usual solution for situations of distrust (Moran-Tschannen & Hoy, 2000). A more serious issue related to distrust is that once it is established, it has a strong tendency to be "self-perpetuating" (p. 550). In general, insecurity and evidence-based refutation stemming from distrust threaten public relations' existence and value.

Dimensions and Degree of Trust

Base and Degree of Trust

At a personal level, trust may be based on one's disposition to trust, on moods and/or emotions, on values and attitudes, on calculative motives, on institutional supports for trust, or knowledge of or a sense of identification with the other person (Moran-Tschannen & Hoy, 2000). Therefore, even in a personal relationship, trust itself is multifaceted. In case of mood and emotion, emotion is known to be intense while mood is less likely so (Jones & George, 1998). Although people tend to be affected by emotion when they are exposed to vulnerability, a single factor governing the process of trust building at a personal level has not been determined. Another widely studied trust-building factor is

similarity. According to Zucker (1986), people tend to extend trust more readily to people they perceive as similar to themselves.

However, because diversity is a more widely accepted norm than similarity, trust is more difficult to achieve. Understanding trust becomes even more complicated when people calculate relative costs of handling vulnerability to maintain relationship, or calculative trust. However, such transactional decisions vary widely based on personal resources, prior experience and knowledge, situational pressure, and communication. Therefore, it is important to clarify what lays a foundation in forming and developing trust to better understand limitations and application.

As mentioned, trust is multi-faceted. Even though people have a same base of their trust, it is technically impossible to have a same degree of trust among them because relationships are multifaceted. Parties in the relationships may hold simultaneously different views that could generate such inconsistencies (Moran-Tschannen & Hoy, 2000). In other words, the degree of trust has its own bandwidth as various types of relationships do, with crucial thresholds across which trust turns to distrust (Shaw, 1997). The threshold level will also vary as facets of trust vary accordingly as one's expectation levels vary. Based on previous studies, there must be an optimal level of trust. Too much trust incurs too much investment to sustain a relationship (Wicks, Berman, & Jones, 1999). Too little trust incurs impotent for an organization to use trust as an asset (Barney & Hansen, 1994).

Meaning and Facets of Trust

As previously noted, trust is not necessarily a byproduct of emotions, but of cognition, knowledge, and experience. Since trust is based on numerous cognitive- and knowledge-based sources, there appears to be a widespread lack of agreement on a suitable definition of trust. However, people generally agreed on trust's importance. A brief review of previous studies of trust reveals that trust has been difficult to define because it is multifaceted and may have different bases and degrees depending on the trust relationship's context.

However, there must be certain recurring themes that emerge regardless of the context of trust studies. For instance, for more than two decades, trust has been understood using the following: willingness to risk vulnerability, confidence, benevolence, reliability, competence, honesty, and openness to its multifaceted nature. However, such themes do not accommodate current theoretical development and various communication practices, such as public relations, especially amid the plethora of current information. (Appendix 1 summarizes various definitions and elements of trust resulting from studies in various fields, including management, marketing, sociology, social psychology, philosophy, and communications.)

Levels of Trust

As the definitions of trust vary, a common idea is also to consider various levels of trust. Govier (1997) suggested interesting ideas relevant to the levels of trust, thin and thick trust. Thin trust, according to Govier, is based on rational and comparative calculations of costs and benefits. Thus, it considers what evidence (costs versus benefits)

reflects from the relationship. However, not all trust is based on calculative motives of costs and benefits. For instance, trust in interpersonal relationship is conceptualized as attributions concerning the partner's benevolence (Ganesan, 1994). Benevolence, interestingly, does not necessarily come after calculative motives. Benevolence in fact strongly refers to genuine interest in the other party's welfare (Rempel & Holmes, 1986). As an enhancement, Friedland (1990) expressed the idea of trust in terms of benevolence as "genuine responsiveness," which has a conceptual connection with Philosopher Herzberg's contention of a "going beyond what evidence proves" type of trust—or what Govier (1997) called thick trust.

Need for Trust

Need for trust becomes prominent in situations when the costs of violation exceed the expectations or benefits of trusting behavior (Zand, 1972). For this reason, scholars studying trust believed that risk is indispensable when defining trust of various forms (Bhattacharya, Devinney, & Pillutla, 1998) because although it may vary, trust leads to certain actions that could increase vulnerability to the other party (Deutsch, 1962). Therefore, trust is understood to be connected to risk. Gambetta (1988) further argued this type of risk connection by noting that "trust may not be relevant without the possibility of exit, betrayal, and deflection" (p. 219). Therefore, trust is commonly known to involve risk-taking decisions (Luhmann, 1988).

Thus the question of why people take such risk in trusting is raised. Heimer (1976) and Luhmann (1979) suggested that trust is one of the ways individuals cope with uncertainty and vulnerability. Without trust, what is possible to do is extremely limited.

Virtually everything people do is built on and around the notion and perception of trust. This reality suggests that if there is distrust, everything collapses (Bok, 1978). Cassell and Bickmore (2000) added the necessity of trust as a catalyst enabling financial, emotional, and knowledge transaction with the other party. The communicative actions are also hindered when trust is absent. Prentice (1974) found frequent pauses, dropped words, and incoherent sounds between two non-trusting communicators. Schurr and Ozanne (1986) also found hardly any collaborative actions between non-trusting partners.

Antecedents of Trust

Table 3 presents various antecedents of trust identified in the literature from various fields. These antecedents include (technical) competency, integrity, impression, similarities, and reputation. The groups presented here are considered the most relevant to this dissertation's topic.

Common Ground-based Trust

According to Berscheid and Walster (1978), people tend to give open and positive responses to those who appear similar to themselves and share common ground. In psychology, this concept is called the approach/avoid principle. Similarity leads to interpersonal attraction and resultant social interaction and, when properly escalated, cohesion (Baron & Pfeffer, 1994). For example, likeability and similarity are known to be the two biggest determinants of trust in salespeople above many other conditions (Doney & Cannon, 1997). From an organizational perspective, people trust those who have similarities to themselves in ethnicity and culture (McAllister, 1995). According to

Clark (1996), a successful foundation for effective communication starts by building common ground, which is shared knowledge, expectations, and other information presented by the participants. The greater the common ground, the more effective the communication.

Therefore, building common ground and rapport in a conversation is critical to building trust. In face-to-face communication, people adopt a variety of signals, such as gestures and facial expressions in a constant process of sensing affective climate and understanding language's hidden meaning and adapting to changes. According to Goleman (1995), human conversation is much more than simple process of exchanging ideas; it involves cognitive, emotional as well as social intelligence.

Table 3 Various Antecedents of Trust

Barbarino and Johnson (1999)	Actor Satisfaction, Actor Familiarity Attitudes, Play Attitudes, Theater Facility Attitudes
Barber (1983)	Technical Competence, Fiduciary Responsibility
Butler (1991)	Consistency, Integrity, Fairness
Butler and Cantrell (1984)	Integrity, Competence, Consistency Loyalty, Openness
Cook and Wall (1980)	Trustworthy Intentions, Ability
Crosby, Evans, and Cowles (1990)	Similarity, Service Domain Expertise, Relational Selling Behavior
Deutsch (1960)	Ability, Intention to Produce
Doney and Cannon (1997)	Salesperson Expertise, Power, Similarity, Likeability, Frequent Contact
Gabarro (1978)	Character-Based (Integrity, Motive and Intentions, Consistency, Openness Discreteness) Competence-Based (Functional Competence, Interpersonal Competence, General Business Sense) Judgment (Ability to Make Good Judgments)
Ganesan (1994)	Reputation of the Vendor, Perception of Specific Investments by Vendor, Retailer's Experience with the Vendor, Satisfaction with Previous Outcomes
Garfinkel (1967)	Persistence, Regularity, Order, Stability
Giffin (1967)	Expertness, Reliability as Information Source, Intentions, Dynamism, Personal Attraction, Reputation
Hovland, Janis, and Kelley (1953)	Expertise, Motivation to Lie
Jones, James, and Bruni (1975)	Ability, Behavior is Relevant to the Individual's Needs and Desires
Mayer, Davis, and Schoorman (1995)	Ability, Benevolence, Integrity
McKnight, Cummings, and Chervany (1998)	Personality-Based, Institution-Based, Cognition-Based
Moorman, Deshpande, and Zaltman (1993)	Perceived Integrity, Willingness to Reduce Search Uncertainty, Confidentiality, Expertise, Tactfulness, Sincerity, Congeniality, Timeliness
Morgan and Hunt (1994)	Shared Values, Communication, Non-Opportunistic Behavior,
Nicholson, Compeau, and Sethi (2001)	Similarities of Business Values, Frequency of Interaction
Shapiro, Sheppard, and Cherakin (1992)	Calculus-Based, Knowledge-Based, Identification-Based
Sheppard and Sherman (1998)	Discretion, Reliability, Competence, Integrity Concern, Benevolence, Predictability, Consistency, Forethought, Intuition, Empathy
Sitkin and Roth (1993)	Ability, Value Congruence
Smith and Barclay (1997)	Character, Motives and Intentions, Role Competence, Judgment
Swan, Trawick, and Silva (1985)	Dependability, Honesty, Competency, Customer Orientation, Friendliness (Likeability)
Whitener, Brodt, Korsgaard, and Werner (1998)	Behavioral Consistency, Behavioral Integrity, Sharing and Delegation of Control, Communication (e.g., accuracy, explanations, and openness), Demonstration of Concern
Zucker (1986)	Process-Based, Person-Based, Institution-Based

(Adopted from Lee, 2002, p. 20-24; Mayer, Davis, and Schoorman 1995, p.718)

Expertise- and Objectivity-based Trust

Expertise is defined as a certain depth of knowledge or the ability to perform subject-related tasks comparatively better than others (Alba & Hutchison, 1987). McAllister (1995) also argued that expertise (or competence) is the cognitive antecedent of trust. Expertise-based trust is technically parallel to the notion of trust based on the other party's knowledge and competence (Zaltman, 1993; Sitkin & Roth, 1993; Mayer, Davis, and Schoorman, 1995; Smith & Barclay, 1997). Bashein and Markus (1997) suggested that expertise is not the only sufficient element to inspire trust, but is one of the key building blocks to engender trust when particularly in professional and technical settings (Ravindranath & Grover, 1998). In general, we trust those who are knowledgeable and competent. Conversely, lack of information, knowledge, and expertise can destroy trust (Pagden, 1988). When we trust in the partner's expertise, we can be confident that he or she will be competent to handle complex and unknown challenges that might appear (Ravindranath & Grover, 1998).

Individualized Trust (Integrity-based Aspects)

Integrity is a personal characteristic that indicates trustworthiness (Zucker, 1986). Resulted from that, the construct of integrity and its definition still remains vague and has not been well-established (Rieke & Guastello, 1995). Integrity is viewed as a type of individual commitment to certain principles. Sitkin and Roth (1993) emphasized the value of integrity's congruency such as match or mismatch between the trustee's values with those of an organizational referent, and the congruence is different from a judgment of acceptability of the values. In other words, as long as individuals follow an

organization's values, they can be deemed to have integrity. Becker (1998), referring to Rand's (1989) Objectivist ethics, suggested that integrity should be loyal to rational principles and values. He maintained that integrity does not allow irrational considerations to overwhelm rational convictions. Integrity involves actions that are in accordance with a morally justifiable value system, which goes beyond the immediate environment. Thus, the moral values supported by a person with integrity do not necessarily have to match his own organizational values, but have to be aligned with a higher value system.

Integrity (Butler & Cantrell, 1984; Mayer, Davis, & Schoorman, 1995; Moorman, Deshpande & Zaltman, 1993) and honesty (Lazelere & Hutchison, 1980) are known to enhance trust. It is because we tend to trust people with integrity and honesty. In a sales context, integrity could be related to the intention to provide unbiased and complete information, which appears to exceed a value of self-interest. Information provided by people without integrity is deemed not credible.

Institutionalized Trust (Rule- and system-based Aspects)

Trust also reflects the implicit rules and expectations people usually have about unknown others (Rotter, 1967). Keen et al. (2000) studied trust as a foundation of commerce and claimed that sometimes law, contract, or regulation generates trust. This phenomenon was also noted by Gambatta (1988), whose study found that a degree of rational cooperation leads to sustaining society and helping it prosper. Bok (1978) also claimed that trust is a social good; when it is destroyed, society falters and collapses. Furthermore, Barber (1983) claimed that trust can involve expectations about the

persistence of the social order and system in which the relationship between two or more parties is formed. Therefore, trust in general (or general trust) is necessary to maintain social order and market efficiency. Moreover, it goes beyond a type of trust that is simply formed by individuals or within a narrow and specific social network (Moore, 1999; Humphrey & Schmitz, 1998).

Institution-based trust (Humphrey & Schmitz, 1998; Shapiro, 1987; Zucker, 1986) suggests that individual trust is affected by how much one perceives a particular environment is safeguarded by guarantees, safety nets, and other legal or regulatory protection. This so-called control trust (Das & Teng, 2001) is based on an institutionally produced control system and not on the specific interacting parties (called party trust). This concept suggests that individual attitudes about trust or distrust created through systematic protection will reflect the level of trust in a society.

Humphrey and Schmitz (1988) further elaborated that trust in the social order and governance, or institution-based trust, is believed to foster freer flow of information and even social prosperity. Moore (1994) also mentioned that if a particular system is considered the most tightly regulated system by a powerfully enforced and reasonable law, members of the system tend to believe in one another and, thus, expect freer exchange of information and resources.

Trust Perceptions and Individual Difference

Cognitive and Affective Basis

In conceptualizing an individual's evaluative judgment, one of the common approaches is based on the concepts of cognitive belief and affective emotion (Petty, Wegner, & Fabrrigar, 1997). These two concepts were actually found to be a basis of trust (Lewis & Weigart, 1985; McAllister, 1995). Cognitive trust or reliability (Johnson-George & Swap, 1982) is majorly based on evaluating others' dependability, credibility, and competence (Lewis & Weigart, 1985). Affective trust, different from cognitive trust, refers to the key elements of deciding whether to trust based on the emotional bond with and concern for others (McAllister, 1995). These dimensions of trust have been identified as fairly unique (Johnson-George & Swap, 1982). Other studies of trust also identified cognitive and emotional elements of trust. Rempel et al. (1985) identified dependability as cognitive confidence and faith as emotional assurance, which comprise two distinct psychological dimensions.

Questions have arisen concerning popular approaches to the separate bases, cognition and affection, of trust's psychological constructs (Gray, 1990). In the psychology literature, a significant portion of research argued that affect primacy is mere exposure effect. In other words, affective responses come after perception but before cognition (Zajonc, 1984; Zajonc & Markus, 1985). Through an experiment, Zajonc and Markus found that repeated exposure to an object could increase affective preference even if the participants did not know about the object at all. This research concluded that affect may directly lead to automatic neural responses, which may or may not have been

relevant to conscious cognition. On the other hand, cognitive processes include appraisal, interpretation, attributions, and processing strategies (Berkowiz, 1993). Lazarus (1982) posited that appraisal, a complex cognitive appraisal of the significance of events for one's well-being (p. 1019), exceeds the presence of emotion. Based on the findings, he further argued that emotion results from an anticipated experience or imagined outcomes of a related and/or relevant transaction between organism and environment. Emotion and cognition that are known to be inseparable have also been addressed from the integration perspective emphasizing the importance of emotion to cognition. Parrot and Schulkin (1993) argued that integration of cognition promotes a proper function of emotion. This integration perspective of emotion and cognition emphasizes that emotion is essential to appropriate cognitive decision-making. This approach means that assessing others' trustworthiness is a product of the interdependent play of affective and cognitive processes. For instance, McAllister (1995) characterized the necessity of cognitive trust to develop affective trust. According to his study, the trustor will have even higher confidence if feeling and cognitive assessment attest equally to the other party's trustworthiness.

The distinction between the affective and cognitive basis of consumer evaluation in consumer studies, the interplay of affection and cognition was being widely recognized. Elaboration Likelihood Model (ELM) suggests that antecedents of affective- and cognitive- based attitude could be different from one another. This model allows a prediction of equally favorable attitude that is created either affectively or cognitively (Haugtvedt & Wegener, 1994).

In social psychology, researchers have investigated the relationship between affectively and cognitively induced attitude. Edwards (1990) and his colleague (Edwards & von Hippel, 1995) assumed that although two people appear to have the same magnitude of attitude, their attitude possibly demonstrates differential susceptibility to persuasive efforts to challenge their attitude either cognitively or affectively. They argued that basic perceptual experiences (for example, taste) are primarily affective compared to verbal information processing about the attributes of an object that is primarily cognitive. The schema involved with primarily affective attitudes is more inclined to hedonic and uni-dimensional cognitive structure, which indicates preference. Unlike the schema involved with affective attitude, cognitive- based attitudes are the attributes in a piecemeal fashion (Fisk & Pavelchak, 1986). Therefore, the emerging impression of preference is integration of the components of piecemeal information. Another interesting study of affective- and cognitive-attitude formation is about the matching effect (Fabrigar & Petty, 1999), suggesting that affective means are better matched with affective- based attitude than with cognitive-based attitude because affective-based attitudes are obtained directly and cognitive-based attitudes are obtained indirectly. For instance, in communication, affective persuasion is found to be more effective in influencing the affective basis than the cognitive basis of attitude.

Based on the earlier discussion of affective and cognitive basis for trust, benevolence is affect-based trust whereas competence is cognitive-based which is relevant to evaluating the other party's capability. Thus, the relationship between affect and cognition could be redirected as interdependent. For instance, McAllister (1995)

found that business colleagues' trustworthiness could be measured along with two unique dimensions to the extent of affect-based trust and to the extent of cognitive-based trust. However, in his study, the levels of cognitive-based trust were highly correlated with the levels of affect-based trust.

Trusting Intentions

Rousseau et al. (1998) suggested that trust can be better understood as intention – a type of psychological state, which may form certain types of behavior to accept vulnerability based on positive feelings (affective basis) and expectation (cognitive basis) of the others' or the transaction partners' intentions or behaviors. Although this view of trust as intention has not been the dominant view in some practical fields such as marketing, Morgan and Hunt (1994) defined trust as a type of confidence in an exchange partner's reliability and integrity. Similar to their studies, Doney and Cannon (1997) also suggested trust as a target of trust's perceived credibility and benevolence. Ganesan (1994) also noted that trust is a belief, sentiment, and expectation; therefore, in Doney and Cannon's definition, trust is "credibility" and "benevolence" (p. 16). However, the behavioral intention or willingness to rely on is absent from the definitions because grasping the blurry identity between perception and behavior is difficult and because of the lack of attention to that matter. Regarding the lack of definitions, Smith and Barclay (1997) proposed somewhat conflicting yet persuasive separate ideas on trustworthiness (role competence, character, motive and intention, judgment) and trusting behavior (relationship investment, influence acceptance, communication openness, control reduction, forbearance opportunism) as being related and/or being separated based on

contextual factors. Mayer, David and Schoorman (1995) and McKnight, Cunningham, Chervany (1998), in the management literature, defined trust as benevolence, competence, predictability, honesty, ability, and integrity as trusting belief. Johnson-George and Swap (1982), however, argued that trust is better defined as an intentional construct that has behavioral implications related to specific targets and situations.

Consequence of Trust

Potential outcomes of trust could be attitudinal and behavioral aspects of communication effectiveness. In public relations, the effectiveness of it is heavily depending on various communication effects for which the messages are designed.

Communication Effectiveness of Trust

One of the common examples of trust presence is communication. Communication between two parties who do not hold on to trusting intention and trust perception for each other is hard to sustain. For instance, Prentice (1974) found noticeable less verbal frequency and more pause, dropped words, and incoherent sounds in communication between non-trusting parties compared to communication between trusting parties. In the case of public relations, rhetorical paradigm partly, or sometimes entirely, adds value to organizations by increasing sensitivity to how stakeholders create interpretive frames to impose limits on their business and other activities (Heath, 1993). This idea conversely reflects what people think and say must be reflected in organizations' activities. As Sitkin and Roth (1993) emphasized, the value-congruence aspect of integrity-based trust influences the matching or mismatching between the trustee's values

and those of an organizational referent. Consequently, integrity-based trust will affect the level of persuasion as well as the relationships.

Persuasion Effectiveness of Trust

According to Petty and Cacioppo (1981), persuasion mainly refers to attempts to change people's attitudes. Ganesan (1994) suggested that trust is equal to credibility from the persuasive marketing context. According to Parasuraman, Zeithaml, and Berry (1985), trustworthiness is a part of credibility and predominantly determines perceptions of service quality. Source credibility is the extent to which a communicator is perceived to be a source of reliable and trustworthy information and also represents the audience's confidence that the communicator's intention is to give accurate and valid information. In social psychology, research suggested that persuasion has an important link to trustworthiness. For instance, Hovland, Janis, and Kelly (1953) suggested that credibility was affected by two factors: expertise and trustworthiness. Consumer researchers Dholaakia and Sternthal (1977) found the same conclusion as Hovland et al.'s (1953) study of expertise's effect.

In marketing, when consumers are presented with a message for a relatively unknown area, they tend to try to assess the accuracy and source credibility of a given message. If consumers are not convinced of the information's credibility, they tend to under-value the claims made in the message (Eagly, Wood, & Chicken, 1978). When the source is believed to be trustworthy, however, consumers tend to make comparatively fewer counter arguments. Therefore, consumers are supposed to have a tendency to be persuaded by a trustworthy source's messages (Grewal, Gotlieb, & Marmorstein, 1994).

In that case, instead of engaging in counter-argumentative thinking, consumers, according to Sternthal, Dholakia, and Leavitt's (1978) study, tend to accept the information that is provided by experts and make decisions based on the experts' endorsement. Priester and Petty (1995) also suggested similar results that the source's trustworthiness, if it is high, may lead to reduced elaboration of message, especially for those low in need of cognition. Several different studies also have demonstrated that trust leads to positive attitude toward buying (Harmon & Coney, 1987), high product ratings (Sharma, 1990), and increased purchase intentions (Harmon & Coney, 1982).

Relationship Effectiveness of Trust

It is noted that no single variable has influenced interpersonal and group behavior as much as trust (Golembiewski & McConkie, 1975). For instance, in marriage literature, trust works as a prerequisite to positive relationship outcomes and interpersonal growth (O'Neill & O'Neill, 1972). Larzelere and Huston (1980) found that dyadic trust is positively associated with love, intimacy, self-disclosure, and commitment. Trust is also known to increase security in relationships, reduce defensiveness, and allow people to share their feelings and dreams.

According to Ring and Ven de Ven (1994), trust's centrality in facilitating effective inter-organizational and interpersonal relationships is theoretically established. Trust works as a critical condition that has to be presented before making any cooperative activities (Morgan & Hunt, 1994). Jones and Gorge (1998) also found that trust opens a way to interpersonal cooperation and promotes teamwork. Trust also determines social interactions (Gambetta, 1988) and relationships (Golembiewski & McConkie, 1975).

Cook and Wall (1980) found that trust among individuals, groups and organizations is a key ingredient when regarding long-term stability. If we are without trust, humans have no way to assure any types of appropriate reciprocation (Blau, 1964). Trust among people, when it is high, also contributes to effective problem solving (Barnes, 1981), improves customer loyalty (Sonnenberg, 1994), and even enhances teamwork productivity (Schindler & Thomas, 1993) and managerial and organizational effectiveness (Blanchard, 1995; Miles & Snow, 1995). Other studies of trust have also specified trust as having a substantial impact on dependence, satisfaction, and commitment (Andaleeb, 1996; Geyskens et al., 1996). For instance, positive relationships between trustworthiness and cooperation's reputation have been consistently found in in buyer-seller relationships (Schurr & Ozanne, 1985; Selnes, 1998) as well as in channel relationships (Morgan & Hunt, 1994). Studies on trust in sales people, for instance, trust leads to satisfaction with a salesperson (Crosby, Evans, & Cowels, 1990), with a salesperson's company, and with products a salesperson recommends (Lagace & Marshall, 1994). Trust is also known to lead to positive attitudes toward products and sales efforts (Busch & Wilson, 1976), and to long-term orientation (Ganesan, 1994). Trust, therefore, will likely to lead to relationship effectiveness with heightened relationship satisfaction and loyalty when it exists among the interaction partners.

CHAPTER 3

RESEARCH METHODOLOGY

The Process of Trust Index Development Research – Overview

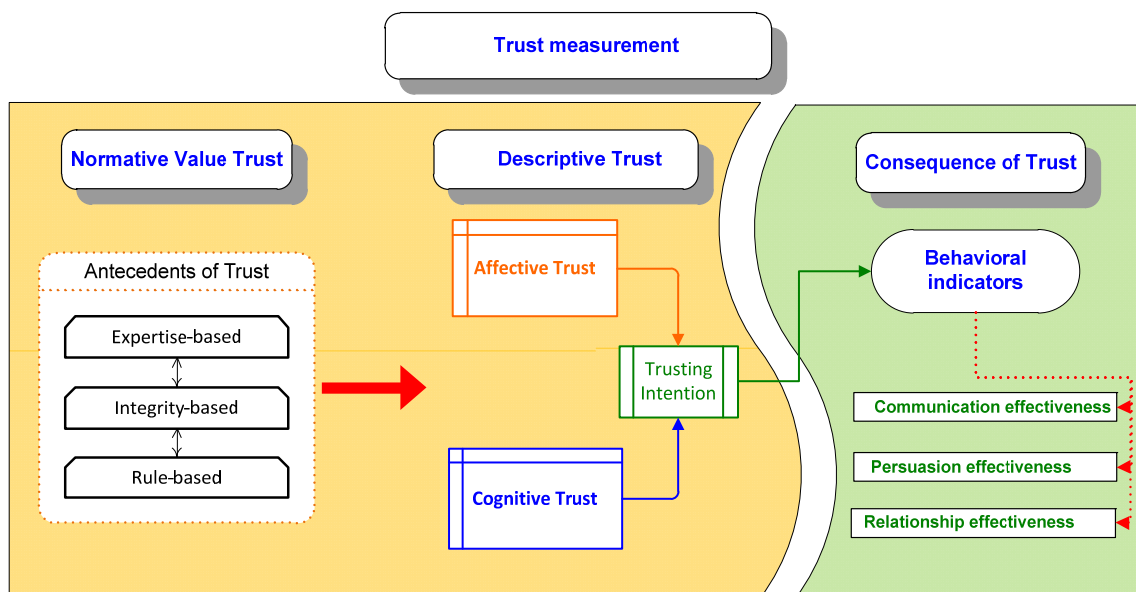
Developing a reliable measurement metrics for various contributions of public relations has become more important than ever before. A reliable measurement metrics could serve as a key to the delusion of the long-believed myth of image among public relations practitioners (Grunig, 1993). Trust, regarding its importance in many discussions of relationship studies and the possibilities to improve previous relationship measurement studies, can be a reliable indicator in measuring relationship quality. A noticeable redundancy in many disciplines' studies and the amount of attention many scholars have paid demonstrate how important the idea can be in understanding and diagnosing the relational status between an organization and its key publics.

However, researchers wanting to measure the degree of trust in various people in an organization have been dependent on a problematic operation. In the conventional approach to measuring such cognitive and behavioral disposition, the most common questions used were “Do you trust?” or “How do you trust?” One of the conventional approach's greatest weaknesses is the reliance on varied definitions of trust by each individual. Some people might be subject to a moderate level of trust, but describe themselves as strong trust holders, whereas others might be subject to a stronger trust, but describe themselves as moderate supporters. Furthermore, in many cases, asking subjects whether they trust could be impractical. Thus, this measurement study requires a different conceptual framework that dismantles interconnected concepts of trust and

builds a process of moving from the idea of trust to questionnaire items that handle trust's obscure and ambiguous nature.

Based on the previous discussion of various characteristics of trust and critical perspectives on conventional studies, the dissertation of trust measurement development consists of three distinct parts representing key diversities and characteristics of trust: 1) normative value items of public relations trust as a message/information measurement, 2) descriptive trust items as individual perception-related trust measurement, and 3) trust-consequence items as expected behavioral intention as a response/attitude measurement. Figure 1 explains the three core components' conceptual flow in the development process.

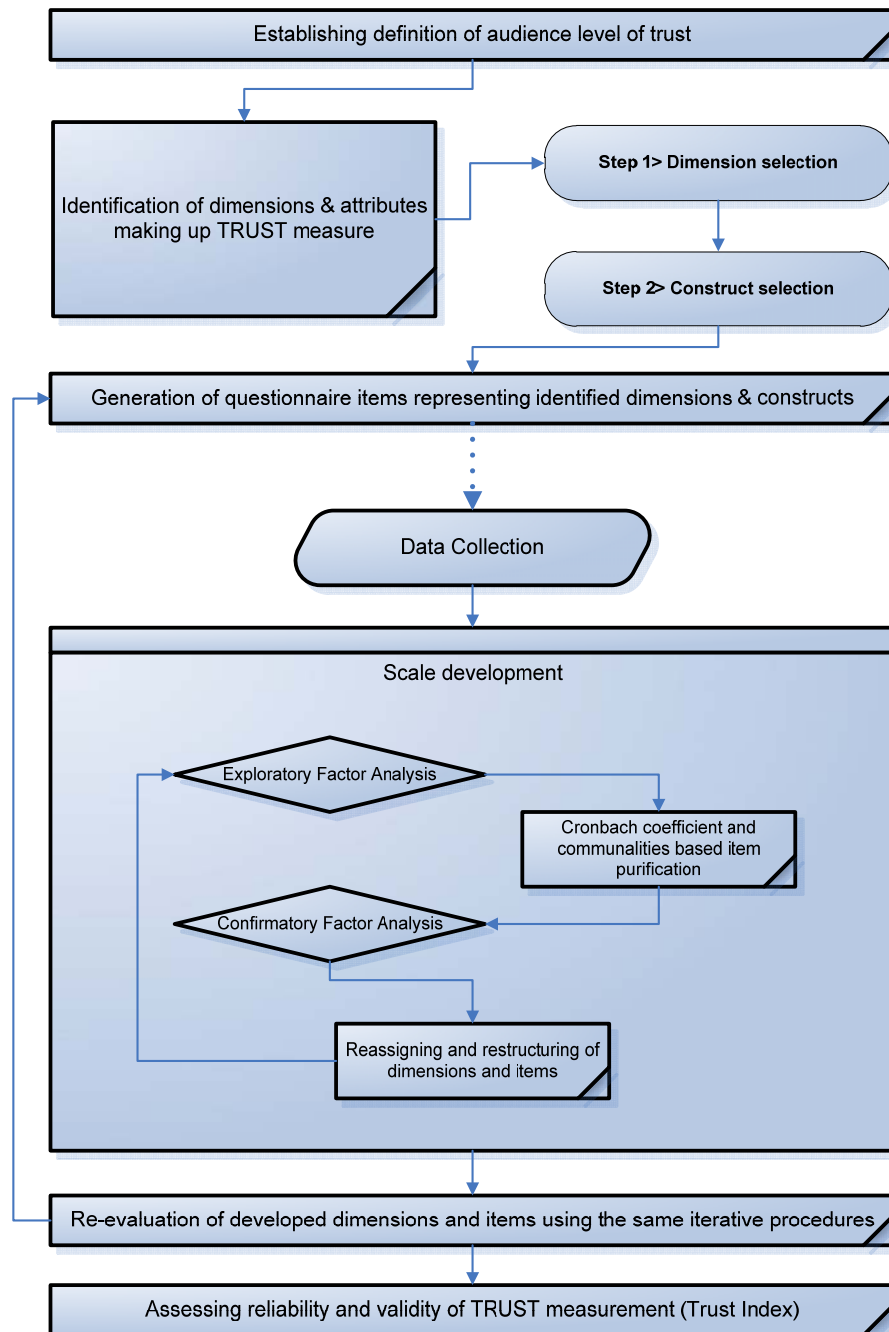
Figure 1. Trust Measurement – The Three Core Components



Organization of the Study (Research) Design - Overview

This dissertation consists of three steps: pre-test session and two major study procedures, Phase 1 and Phase 2. As a part of pre-test sessions, a full version of the questionnaire will be reviewed for wording, adequacy of tone and manner in which the questions are constructed, construction of logical flow of the questionnaires, and possible stress of the respondents when they put in to actual tests to gauge completion rate. For the purpose, colleagues who are doing doctoral studies at the university were invited. Various experts will be invited to participate: expert reviewers from the faculty members in the communications college and in the psychology department along with randomly selected graduate students in communications. The purpose of this expert review process, and maybe the most important reason, is to ensure the questionnaire's wording will not undermine or distort each question's meaning and, more importantly, this study's purpose. Measurement development studies generally require a series of questions to filter in and out questions based on desired adequacy. Moreover, the questions evolve and are honed through stages of reviews and feedbacks. After collecting feedback about and the questionnaire revisions, a final version of the questionnaire will be developed for in-class tests. This study will deploy multiple rounds of small sample tests to discover a stable response pattern. To acknowledge the stability, mean and standardized deviation will be used for comparison and to identify any structural variations.

Figure 2. Organization of the Dissertation - Overview



After the pre-test sessions including expert review process, the following major steps will be applied; 1) Phase 1 that is to develop measurement items and test the items' reliability and validity to form a unified scale and 2) Phase 2 that is to test the developed scale with different sample sets to further enhance the results.

To develop attitude and behavior measurement scales, exploratory and confirmatory factor analysis (EFA and CFA) is generally used. In recent studies of developing measurement scales, Structural Equation Modeling (SEM) is a new branch of solidifying study results (Worthington & Whittaker, 2006). In Phase 1, this dissertation will take the exploratory steps using the three previously discussed components: normative value items for public relations trust, personal/subjective trust items for trust perception, and trust consequence items for expected behavioral intention as a response. For the confirmatory step, this study will employ SEM to confirm how well the discovered items and the scale represent the perception and behavioral intentions of public relations message consumers' trust. In Phase 2, the resulting scale items set, Trust Index, will be tested and revamped if needed through a substantial statistical-evaluation process. Details will be discussed in the following sections.

The Process of Scale Development Research – General Ideas

In fact, there are various strategies used in scale construction. However, they often use somewhat different labeling for similar approaches (Worthington & Whittaker, 2006). Brown (1983) summarized three primary approaches that have been employed in scale development: logical, empirical, and homogeneous. To this, Friedenberg (1995) identified slightly different set of categories such as logical content or rational, theoretical,

and empirical, in which presents criterion group and factor analysis methods. According to Friedenberg (1995), the rational or logical approach simply uses the scale developer's judgments to identify or construct items that are obviously related to the characteristic being measured. The theoretical approach uses psychological theory to determine the contents of the scale items. Both approaches have been gradually outdated from the field of research. What becomes a major line of the development method is using more rigorous empirical approach based on statistical analysis of item responses as the basis of item selection. It incorporates either predictive utility for a criterion group or homogeneous item groupings. The basic technique that is employed in scale development using factor analysis is to form homogeneous item groupings (Worthington & Whittaker, 2006).

DeVills (2003) suggests that a construction of a new measurement instrument needs to follow the following steps: (a) Determine clearly what a researcher plans to measure, (b) generate the item pool, (c) determine the format of the measure, (d) invite expert review on the initial item pool, (e) consider inclusion of validation items, (f) administer items to a development sample, (g) evaluate the items, and (h) optimize scale length.

In scale development, a clear definition of constructs using existing theory and research results provides a sound conceptual foundation. However, this step requires a thorough commitment to carry out because it requires researchers to distinctly define the attributes of abstract constructs. This effort pays back itself by eradicating ill-defined constructs, which lead to the inclusion of peripherally related items to the key constructs

or exclusion of important elements to the contents domain. To obtain stable set of underlying factors that clearly reflects the construct of interest, “factor-analytic and data reduction technique” are required (Worthington & Whittaker, 2006, p. 813). It is, of course, an important preparation to set a proper pool of items that are not poorly worded and/or not central to well-articulated construct. In that case, such problematic items make the instrument more prone to error variance and promote reduction of overall strength of correlation. In other words, the measurement items have to be written clearly, concise, readable, distinct, and reflect the scale’s purpose (Worthington & Whittaker, 2006). Moreover, it also is important to keep the questionnaire of measurement items parsimonious to increase the possibility of obtaining completed questionnaires. The parsimonious questionnaire also reduces the possibility of higher-order effect that is generated as other measures may interact with the selected measures of new items. Assessment of convergent and discriminant validity along with a separation of new and pre-established measurement items could contribute to solve the problems. These administrating procedures will stretch to sample consideration, measured items evaluation, and optimization of scale length.

Statistical Concerns in Analysis - Overview

Factor Analysis in General Sense

Factorability

Along with the sample size (for more details, please refer to Sample section), factorability is also affected by the size of correlations in the matrix. A widely used Bartlett’s (1950) test is known to be highly susceptible to the

influence of sample size and likely to be significant for large participants with relatively small correlation (Tabachnik & Fidell, 2001). To overcome this weakness, the Kaiser-Meyer-Olkin (KMO) measure of sample adequacy is used as one of the correction methods. This measure accounts for the relationship of partial correlations to the sum of squared correlation. In other words, this indicates the extent to which a correlation matrix actually contains factors or simply chance correlation between a small subset of variable.

Extraction methods

There are two commonly known methods for factor extraction, PCA (Principle Component Analysis) and FA (common-Factor Analysis). However, there has been a protracted debate over the preferred use of PCA versus FA as exploratory procedure, which is yet to be solved (Gorsuch, 2003). What becomes important for the matter is to understand the difference between the two statistical assessments. PCA is purposively used for reducing the number of items to bring compact structure, while FA is to understand latent structure of factors or constructs that account for the shared variance among the tested items (Velicer & Jackson, 1990). In terms of closeness to the purpose of scale development researches, FA is closer to the calls. According to Floyd and Widman (1995), FA is better and more effectively generalize to confirmatory factor analysis (CFA) under a certain condition that may have varied by the characteristics of the data set.

Rotation methods

There are two basic rotation methods: orthogonal and oblique. Orthogonal rotation is commonly used when the factor structure is known to be uncorrelated, while oblique rotation is used when the factor structure is assumed to be correlated (Gorsuch, 1983; Thompson, 2004). Initially the way to choose which rotation method should be in use is usually based on theory or data. However, if a researcher discovers that the factors appear to be correlated in the data when theory suggests them to be uncorrelated, it is most adequate to choose data based approach (Worthington & Whittaker, 2006). However, orthogonal rotation with correlated factor structure may occasionally produce “over-estimated loadings” (p. 820).

Guidelines for Factor Retention

The most widely accepted practice of deciding how many factors have to be retained is provided by Kaiser (1958) and Cattell (1966) by using eigenvalue. This approach may help to determine the importance of a factor and could indicate the amount of variance in the entire set of items accounted for by a given factor (Gorsuch, 1983). In practice, the eigenvalue produced will be successively less useful information because of the fact that each new factor extracted after the first is based on the residual of the previous factor’s extraction. Thus, Kaiser (1958) believed that eigenvalue less than 1.0 reflects potentially unstable factor. Scree plot (Cattell, 1966), using eigenvalue, examines the relative values of eigenvalues to estimate the correct number of factors. The scree plot shows the descending values of eigenvalues to locate a break in the size of eigenvalues.

Another way to evaluate factor retention is to use *approximate simple structure*. According to McDonald (1985), the term simple structure has two radically different meanings that are often confused. The term simple structure in factor pattern means either (a) if several items load strongly on only one factor or (b) if items have a zero correlation to other factors in the solution. What McDonald (1985) has argued as *approximate simple structure* can often be estimated by using rotation methods during FA. Particularly in exploratory stages, efforts to produce factor solutions with approximate simple structure are central to decision about the final number of factors and about the retention and deletion of items in a given solution. As a consequence of the efforts, structural equation modeling (SEM) approaches in CFA could be improved if a simple structure is achieved during exploratory stages (Worthington & Whittaker, 2006).

Guidelines for Item Deletion and Retention

Item deletion process is very common, and, in very rare occasions, the initial set of items is all submitted to validation steps of a study. The values of item loadings and cross-loadings on the factors are generally used indices to determine whether to retain or delete items in a given factor solution. This process is obviously intertwined with factor deletion and retention process, and helps to focus primarily on empirical scale development (Worthington & Whittaker, 2006). In other words, it is always important to see each item's contribution before making deletion or retention decision. However, according to Tabachnik & Fidell (2001), determination of the magnitude of loadings and cross-loadings could be understood as a matter of a researcher's preference. One

obvious finding about the deletion and retention of items is that simple structure invites lesser item inter-correlation (Worthington & Whittaker, 2006). Thus, it is helpful to set up the minimum value for factor loadings as high as possible, while setting the absolute magnitude of cross-loading as low as possible. If the decision of making deletion or retention has to be made after rotation methods are applied, item communalities help to make some decisions on that such as low communalities less than .40 shows the items are loosely correlated with one or more of the factors in the solution (Tabachnik & Fidell, 2001).

Statistical Simulation using Structural Equation Modeling for CFA

For the second step, current approach in conducting CFA will use SEM, structural equation modeling. Before using CFA, a researcher has to indicate (a) number of factors presented in an instrument, (b) items related to each factor, and (c) possible existence of possible correlations between factors. Since CFA is purposefully used to evaluate and confirm the extent to which the researcher's measurement model is replicated with the same data, but not for exploring the given items factor structure again (Worthington & Whittaker, 2006). Using SEM for the given purposes, it is a powerful confirmatory technique because it allows the researcher a greater control over the form of constraints placed on items and factors when analyzing a hypothetical model. Furthermore, a researcher, using SEM, could also examine competing models to form an evaluation of which a hypothesized model fits better than the other alternate models.

Confirmatory Steps using SEM

SEM has become a widely used technique to explore theoretical models within the social and behavioral science (Martens, 2005; Weston & Gore, 2006). Moreover, CFA is one of the most popular uses of SEM (Worthington & Whittaker, 2006).

One of the typical SEM approaches that are widely used in recent scale development strategy is to specify the resulting theoretical factor structure from EFA in the SEM confirmatory procedure (Worthington & Whittaker, 2006). For instance, if a researcher finds three-factor structure, “specifying the same correlated three-factor structure model using SEM and finding a good or better fit of the model to the data in a new sample will support the factor structure’s reliability and validity” (p. 825). Another way to approach CFA using SEM is to use SEM with several competing models to assess a theoretically better plausible model. If hypothesized model fits better with the data than alternative competing models, it is a further evidence of construct validity. If the competing models fit better compared to the hypothesized model, a researcher has to explain why the discrepancies between models affect construct validity and then conduct another study to further validate the newly adopted model.

In terms of structural variation, there could be nested (or hierarchical) or non-nested models when assessing the results through CFA procedure. One-factor model could be split into two-factor model. For instance, an overall satisfaction measurement model of eight items could be split into two different satisfactions related measurements of four items each. In other words, the one-

factor (restricted) model is nested within the two-factor (unrestricted) models. Using SEM, it is possible to check whether there is significant lose in fit indices occurs when going from the unrestricted model to the nested (restricted) model. When a structural model is not nested, however, it is still possible to compare different theoretical models through using SEM by model fit. This approach become wide use in terms of predictive fit indices, which indicate how well a model will cross-validate in future participants.

In the dissertation, to approach CFA using SEM, several competing models will be analyzed to assess a theoretically better and plausible model. In case of CFA, according to Worthington and Whittaker's (2006) contents analysis on scale development researches, CFA has been used to confirm what is already assessed through exploratory steps to see if the factor structure produced by the process fits the data from a new sample. However, according to Byren (2001), the use of CFA in analytic strategy often represents a serious misuse. One of the ways to correct this misuse is to use CFA to conduct an exploratory steps followed by a CFA in each step of the study process.

Sample and Data Collection

Sample

Phase 1 and Phase 2 have used a population of educated young adults, full- time undergraduate and graduate students of the University of Tennessee, Knoxville, who have spent at least more than one semester on campus.

Using college students in research has been the subject of controversy for decades. Wells (1993) criticized using student participants of current research practices, particularly for laboratory research that is often conducted with college students. His assault was basically in line with Sears (1986), who criticized social psychology for its “heavy dependence during the past 25 years on a very narrow data base: college student subjects tested in an academic laboratory” (p.515). As Sears also claimed, research with college students involves manipulations that “do not map well onto their range in ordinary life” (p.516). The concern is that actually mirroring society at large may not be possible when using college students’ responses (Petty & Cacioppo, 1996). Regarding Wells and Sears’ arguments, Petty and Cacioppo (1996) noted that the concern is only valid and cogent if “the purpose of most psychological and marketing (laboratory) research on college students were to access the absolute strength of some relationship in the real world or the absolute level of some phenomenon in society” (p. 3-4). Instead, according to Petty and Cacioppo, most research done in such an environment as an academic laboratory is to examine “the viability of some more general hypothesis about the relationship” between two or more variables and ascertains what might be responsible for this relationship (p. 4). Therefore, once the relationship is validated, its “applicability to various situations and populations can be ascertained” (p. 4). Furthermore, Petty and Cacioppo argued that it is not necessarily important whether the variables investigated actually co-occur in the real world because research is more than academic curiosity “if the variables can be made to co-occur in the real world” (p.5). To further support their argument, Petty and Cacioppo stated that their view of valuable research begins with either the observation of real world behavior or an abstract hypothesis examining the

hypothesis in an academic environment to bring it to the real world. As an example, they argued that the goal of marketing and psychological science is not merely to describe what is, but also to uncover what can be.

Sears (1986) also argued that student participants are presumed to have a “wobbly sense of self” (p. 522) because undergraduates have weaker attitudes that are easily influenced as well as exhibiting less predictable behavior compared to that of the general population. To this response, Petty and Cacioppo counter argued that many studies examined the consequences of using undergraduate students have been researched what Sears listed as differing between undergraduates and the general population. However, Sears himself “also relied on the research consequences” even for his opposing arguments (p. 5). Another issue Sears raised was self-relevance, which is understood as very low, especially for college students. However, the concept of enhanced thinking of self-relevance denotes that the consequences of self-relevance studied in academic settings would likely be similar across diverse populations (Petty and Cacioppo, 1979). Petty and Cacioppo (1996) believed that many of the variables that can be studied in the general population can also be studied among college students. Furthermore, they also argued that transitions in psychological and socio-psychological studies from cognitive to emotional and rational to irrational are “not tied to the peculiarities of the subject population that is studied” (p. 4).” Therefore, and based on Petty and Cacioppo’s arguments, there is no reason to deny the adequacy of using the University of Tennessee, Knoxville students to develop a measurement scale of trust.

On the other hand, the graduate and undergraduate students participated in this study are also deemed to have a certain level of established, as well as substantial, relationship with the organization, the University of Tennessee, Knoxville. Their relationship judgments, including trust evaluation and judgments regarding the organization where they actually belong to, however, may vary widely based on many factors such as prior knowledge, personal disposition, experiences, situational influence, and interaction history. When developing an attempt to measure trust, considering what types of factors may influence on formation of the sample's trust becomes critical.

According to the discussion of initial trust-formation study (McKnight, Cummings, & Chervany, 1998), initial trust and accumulated trust display different characteristics. In the early 1990s, individual economics or calculative motive-based trust researchers such as Coleman (1990) and Williamson (1993) discussed initial-trust prediction. According to them, individuals are believed to make their trust choices based on rationally derived costs and benefits (Lewicki & Bunker, 1995; Shapiro, Shepard, & Cheraskin, 1992). Compared to introspection-like trust formation, knowledge-based trust develops over time as trust-related knowledge is accumulated through experience (Holmes, 1991; Lewicki & Bunker, 1995). Knowledge-based trust also requires a certain amount of time spent and interaction history (McKnight, Cummings, & Chervany, 1998). In reality, dispositional trust is affecting trust belief and intention differently compared to knowledge-based trust. Trust disposition, according to Johnson-George and Swap (1982), is simply an individual's psychological property, such as faith and/or intention to depend on or trust. In forming trust, at a personal level, the properties create a broad level of

stereotyping (Orbell, Dawes, & Schwartz-Shea, 1994) and illusion of control that is unrealistically inflated perceptions of control (Taylor & Brown, 1988). Therefore, it is likely to change individual's trust judgment soon after the relationship's initial period when trusting intention is associated with only a few highly positive expectations (McKnight, Cummings, & Chervany, 1998). This part of trust formation is not directly related to students' actual or stable trust evaluations and judgment. To further enhance this study's results, it is believed to be better to find participants that have experiences in structural dimensions of relationship, such as formalization, centralization, and structural complexity (Van De Ven, 1976). Such dimensions commonly used to examine social structure and processes are considered appropriate for defining and evaluating "characteristics of relationships" (p. 24).

Senior undergraduate students and/or graduate students who have spent more than one semester on campus are likely to accumulate a certain level of experience in formalization (the degree to which rules, policies, and procedures govern agreements of relationships and contacts); centralization (the locus of concerted decision making in a collectivity); and structural complexity (the number of differentiated elements that must be contended and integrated in order for organizational acts as a unit) (Van De Ven, 1976). The participants' relationship judgments, including trust evaluations and judgments regarding the three dimensions of relationship discussed, they are better suited to the scale development's exploratory and confirmatory steps. Particularly for Phase 1 of model building process, including measurement item-selection process, enrolled students were considered to be representative.

Sample Size Consideration

In scale development research, sample characteristics is important because representativeness in the research does not necessarily need to closely represent any clearly identified population as long as those who score high or low are well represented (Gorsuch, 1997). Moreover, the reason why many scholars have consistently advocated for large participants in the research is that scale variance attributable to specific participants tends to be cancelled by random effects as sample size increases (Tabachnick & Fidel, 2001). However, regardless of sample size, participants who are not adequately representing the population of interests will affect stability and generalizability in factor-structure. Thus, the development sample's appropriateness to the degree possible is advisable; however, it is also suggested that ideal participants are not necessarily required (Worthington & Navarro, 2003).

In the literature review of scale development research (Worthington & Whittaker, 2006), a purposeful sampling from a specific target population is the most common approach to obtain the adequate sample size. Concerning sample size, there are two central issues when using too few participants: (1) patterns of co-variation easily become unstable because smaller sample size could affect correlations among items; and (2) a well-represented population is less likely when using smaller sample size (DeVillis, 2003).

Comrey's (1973) study about sample-size classification has often been cited as a variety of sample size from very poor (N=50) to excellent (N=1,000). In Comrey's recommendation, at least 300 cases were generally regarded as acceptable for factor

analysis. Gorsuch (1983) also proposed a guideline for minimum ratio of participants to items such as 5:1 or 10:1. However, none of the recommendations are firm, and being misled is possible (McCallum, Widman, Zhang, & Hong, 1999).

In general, the larger the sample size, the better the results in terms of stable correlation among variables in exploratory steps. However, according to Valicer and Fava (1998), a ratio of three participants per item is inadequate. Thus, a recommended guideline consists of four overarching rules: (1) sample size of at least 300, in most cases, generally suffice the need, (2) sample size of 150 to 200 are likely to be acceptable with data sets containing communalities higher than .50 or with 10:1 item per factor with factor loading at about |.4|, (3) smaller sample sizes could be adequate if all communalities are .60 or greater or at least 4:1 items per factor and factor loading is greater than |.6|, and (4) sample sizes less than 100 or with fewer than 3:1 participants-to-item ratio are generally regarded as inadequate (Reise, Waller, & Comrey, 2000; Thompson, 2004; Worthington & Whittaker, 2006).

Sample-size consideration for using SEM is based on an assumption of statistical asymptotic, which assumes that large sample size is necessary to provide a stable parameter estimate (Bentler, 1995). According to Kline (2005), SEM analysis should not be performed if the sample size is smaller than 100. Another recommendation is that there should be at least between 5 and 10 participants per observed variable (Grimm & Yarnold, 1995). Yet another recommendation is that there should be between 5 and 10 participants per parameter to be estimated (Bentler & Chou, 1987). However, constraints placed on sample size are technically dependent on estimation method, non-normality of

the data, and relationship strength among indicator and latent variables (Fan, Thompson, & Wang, 1999; West, Finch, & Curran, 1995; Velicer & Fava, 1998). In many cases, it is recommended that a researcher count the number of parameters to estimate necessary sample size. Also advisable to follow is Bentler and Fava's (1987) guideline of 5:1 ratio of participants to the number of parameters.

Overview of the Trust Index Development Process

This study examined two important conceptual pieces critical to developing a measurement scale of trust to enhance better understanding of organization-public relationships. First, this study examined and confirmed the theoretical relationship of the dimensions and constructs that were assumed to form public side trust in terms of organization-public relationships. Second, this study tried to provide a way to measure relational achievement using the validated model of trust measurement and resultant composite scores through the measurement model validation process. Although the sample size was not technically large enough to meet the strictest statistical rigor, analysis results did reasonably meet criteria of confirming and accepting the measurement scale's validity and reliability by residing in a fair-fit range. Specifically, this study included four different stages of data collection and two different stages of measurement model tests to find possibly usable models for other situations in which public relations practitioners need to find their relational achievement and to develop campaign plans.

The following sections explain how data was collected; what kinds of statistical insights and results were sought after; and, as added value, what types of contribution this

study and the resultant composite scores would present to demonstrate how this study helps to manage and promote public relations to achieve desired relational goals.

Measurement Items, Constructs, and Dimensions

Before discussing dimensions and constructs, it is important to mention that this study was intended to explore the rationale of relationships among theoretically determined variables and constructs that are not often developed and accepted, but not about describing a group of individuals using previously developed measurement items. These two types of studies are hugely different in their conceptualization, approaches, statistical procedures to validate a given measurement model as well as the understanding of the results. According to Devillis (2011), the two types of studies represent the difference between theoretical versus atheoretical measurement models. Although distinguishing theoretical and atheoretical measurement models can be difficult at times, theoretical measurement models are relevant measure to theory. However, such relevance is determined by “researchers’ intention” (p. 10-11), which becomes a major part of measurement model validation. Resulted from the ideas, the researcher’s intention is also inviting various quantitative approaches. As theoretical measurement model development, this study’s constructs and dimensions were also formed by a researcher’s intention based on various literature outside as well as within public relations.

Instrument (Measurement Items) Development

Measurement items were developed based on the literature of various fields, such as psychology, social psychology, education, management, marketing, communication, and public relations. After reviewing the literature, three dimensions and 10 constructs

have been developed as shown in Table 4. As discussed in the Theoretical Framework in Chapter 2, the instrument has to have mutually exclusive dimensions to satisfy the purpose of determining what elements (dimensions and/or constructs) to form trust and to understand what has to be used to measure it. Referred to the limitations discussed about previous trust measurement studies in public relations, it has become theoretically and realistically important to avoid individual variance in defining trust when asked “Do you trust?” or “How do you trust?” Instead of asking a whole concept of trust with oversimplified question(s) that creates problematic variance, this study used individually developed and arranged dimensions and constructs. First, the three dimensions are named based on the constructs they contain. For instance, the normative dimension was developed to contain and represent how relationships are understood from information and message perspective based on social norms and the common sense of audience and stakeholders such as common ground, expertise and objectivity, integrity, and rule based (Refer to p. 32 – p.37, Chapter 2). This dimension suggests value, knowledge, role, and organizational system and order that are supposed to be involved when audience and stakeholders evaluate an organization as an entity of society. The second dimension did represent cognitive and emotional factors of audience and stakeholders as an individual because how a certain type of relationship is understood is still in a black-box of human cognition and emotion (Refer to p. 37 – p.40, Chapter 2). These human factors could promote or de-emphasize trust perception and resulting attitude formation. Therefore, this dimension did contain cognitive belief, affective emotion, and intention to trust. The last dimension was the consequence of trust (Refer to p. 41 – p.44, Chapter 2). This dimension asked what type of behavioral and attitudinal stances are formed through trust

perception of audience and stakeholders by using three constructs such as communication effect, persuasion effect, and relationship intention. The item level, followed by the construct level, represented what each dimension and construct were meant to be representing. This section did contain descriptive and social-norm related items, individual factors, and behavior/attitude-related items. Based on the item-level concepts, a survey questionnaire will be developed and tested against statistical criteria.

Table 4. Dimensions, Constructs, and Items of the Measurement

Dimension Level	Construct Level	Item Level
Normative	Common Ground	1) Value congruence 2) Similarity (ethnic, cultural, & business value) 3) Likeability 4) Shared knowledge & expectation
	Expertise & Objectivity	5) Knowledge 6) (Technical) Competence 7) Process-based
	Integrity	8) Commitment 9) Congruence 10) Role competence 11) Accepted value system 12) Honesty 13) Sharing and delegation of control
	Rule-based	14) Order 15) System 16) Institutional environment 17) Regulatory protection 18) Free information flow
Descriptive	Cognitive Belief	19) Consistency 20) Dependability 21) Credibility 22) Competence 23) Predictability 24) Reputation 25) Satisfaction with previous outcomes
	Affective Emotion	26) Benevolence 27) Empathy 28) Sincerity 29) Friendliness
	Intention	30) Willingness to rely on 31) Relationship investment 32) Influence acceptance 33) Openness 34) Control reduction 35) Forbearance opportunism
Consequence	Communication	36) Interpretive Frame (Reflect what people think)
	Persuasion	37) Audience confidence on accurate and valid information 38) Expert endorsement 39) Reduction of message elaboration
	Relationship	40) Dependence 41) Satisfaction 42) Commitment 43) Cooperation 44) Loyalty 45) Long term orientation

Questions developed from Table 4 are arranged in Table 5. The questions were based on various literature found in the previous discussions about dimensions and constructs of trust studied in many different fields. To perform Phase 1- measurement model development, which was designed to explore suitable measurement items, 74 questions were combined with 7-point Likert scale. In choosing a proper scale, “scale sensitivity” was concerned important (Furr & Bacharach, 2008, p. 12). Scale sensitivity is the ability to measure to discriminate adequately between meaningful amounts or units of the dimension that is being measured. For instance, a 9-point scale is more “fine-grained” than a 2-point scale of good versus bad (p.12). According to Dawes (2008), many psychometric studies are more inclined to 7-point or 9-point scales for their primary use to better capture semantic changes among participants. Dawes’ research also shows that the widely used 5-point scale tends to generate slightly higher plagued means, which is statistically significant, when compared to 9- or 10-point scales. However, the issues around scale sensitivity still exist no matter what scale is used. Therefore, to compensate mean distortions statistically and, as a consequence, to reduce the sensitivity relevant issues, the 7-point scale has been chosen for primary use in this study.

Table5. Questions Developed from the Dimensions and Constructs (Revised Version)

Dimensions, Constructs, & Concepts			Studies	Questions
Dimension	Constructs	Concepts		
Normative	Common Ground	Value congruence	- Donney & Cannon, 1997 - McAllister, 1995	(1) I agree with the values of the University of Tennessee. (2) The University places importance on the things that matter
		Similarity	- Baron & Pfeffer, 1994	(1) People like me are comfortable interacting with the university's faculty and other employees. (2) The values of the University are similar to mine.
		Likeability	- Donney & Cannon, 1997 - Swan, Trawick, and Silva, 1985	(1) The University connects with students' interests and wants. (2) The University is sincerely concerned about students' problems and issues. (3) Faculty and other employees understand students' feelings, interests, wants, and needs.
		Reputation	- Rempel, Holmes, & Zana, 1985	(1) The University has a good reputation. (2) The University acts in a socially responsible way.
	Expertise & Objectivity	Knowledge	- Zaltman, 1993 - Sitkin & Roth, 1993 - Smith & Barclay, 1997	(1) Faculty and other employees of the University of Tennessee have knowledge and expertise in their jobs. (2) Faculty and other employees of the University of Tennessee are skilled and well-informed.
		(Technical) Competence	- Alba & Hutchinson, 1987 - Ravindranath & Grover, 1998 - Pagden, 1988	(1) The University approaches its goals with professionalism. (2) The University has the competence to accomplish its goals. (3) The University has technical skills to accomplish its goals.

		System	- Gambetta, 1988	(1) The University has programs and offices to handle students' issues.
		Process Based	- Butler, 1991 - Moorman, Deshpande, & Zaltman, 1993	(1) The University policies are helpful to students. (2) The University's personnel act in a way that is appropriate for a public institution.
	Integrity	Commitment	- Rieke & Guastello, 1995	(1) Most of the University's faculty and other employees keep their promises. (2) The University keeps its commitments.
		Congruence	- Sitkin & Roth, 1993	(1) The University provides what it is supposed to provide.
		Role Competence	- Moorman, Deshpande, & Zaltman, 1993	(1) I can rely on university faculty and other employees to meet their obligations. (2) Faculty and other employees generally fulfill their duties.
		Accepted Value System	- Barber, 1983	(1) The University generally meets students' expectation of quality education. (2) The University provides quality education.
		Honesty	- Mayer, David & Schoolman, 1995	(1) The University faculty and other employees are honest when communicating with student. (2) Communication from the University is truthful.
		Regulatory Protection	- Humphery & Schumitz, 1998	(1) The University complies with academic rules and regulations.
		Order	- Moore, 1999	(1) The University protects the interests of students. (2) The University applies its policies and regulations fairly.
		Free Information Flow	- Humphery & Schumitz, 1998	(1) The University openly shares information with students. (2) The University freely provides information to the media.
		Sharing & Delegation of Control	- Das & Teng, 2001	(1) The University involves students in the decision making process.

Descriptive	Cognitive Belief	Consistency	- Barber, 1983	(1) The University's actions are consistent with its stated intentions.
		Credibility	- Donney & Cannon, 1997 - Johnson-George & Swap, 1982	(1) I can rely on statements coming from the University of Tennessee. (2) The University provides information I can rely on in uncertain situations.
		Competence	- Johnson-George & Swap, 1982	(1) People at the University of Tennessee do their job well. (2) The University is successful at the things it does.
		Predictability	- Lazarus, 1982	(1) I know what to expect from the University of Tennessee.
		Satisfaction with Previous Outcomes	- Lazarus, 1982	(1) My experiences with the University have been positive.
	Affective Emotion	Benevolence	- Donney & Cannon, 1997	(1) Overall, the University cares about students' well-being.
		Empathy	- Ganesan, 1994	(1) The University cares about students like me. (2) The University acts in best interests of students.
		Friendliness	- Donney & Cannon, 1997	(1) In my experience, people at the University are friendly.
	Trustworthiness	Dependability	- Johnson-George & Swap, 1982	(1) I can count on the University faculty and other employees to help solve my problems. (2) I can depend on the University of Tennessee.
		Confidence in Organization		(1) I trust the University of Tennessee. (2) I have a good deal of faith in university as a whole. (3) I believe the University is basically well-intended. (4) I tend to assume the best about the University of Tennessee.

		Forbearance Opportunism	- Smith & Barclay, 1997	(1) I believe the University does not take advantage of me if I let them. (2) I can count on the University not to take advantage of students. (3) If I need help, the University will do its best to help me.
	Intention	Willingness to rely on	- Mayer, David & Schoolman, 1995	(1) The University looks out for what is important to me.
		Relationship Investment	- Ledinham & Brunig, 1998	(1) The University makes efforts to maintain relationship with me. (2) The University's faculty and other employees take time to listen to my problems and worries.
		Influence Acceptance	- Rousseau, Sitkin, Burt, & Camerer, 1998	(1) I feel I can take advice from people at the University of Tennessee.
		Openness	- Smith & Barclay, 1997	(1) The University has open communication with students.
		Control Reduction	- Smith & Barclay, 1997	(1) I am comfortable letting the University makes decisions about academic programs.
Consequence	Communication	Interpretive Frame (Reflect what people think)	- Heath, 1993	(1) I feel the University believes students' opinions are legitimate.
	Persuasion	Audience Confidence on Accurate and Valid Information	- Ganesan, 1994	(1) I am confident that information from the University is accurate.
		Expert Endorsement	- Sternthal, Dholakia, & Leavitt, 1978	(1) I can rely on expertise of the University as a whole. (2) I am confident in accepting advice from university personnel.
		Reduction of Message Elaboration	- Priester & Petty, 1995	(1) I think the University's statements are generally acceptable (2) I don't need to think twice about the messages

				the University sends.
	Relationship	Dependence	- Grewal, Gotlieb, & Marmorstein, 1994	(1) If an important issue arise, I would feel comfortable relying on the University's information. (2) I expect that the University will fulfill its obligations. (3) I know the University will do what it says it will.
		Satisfaction	- Harmon & Coney, 1982 & 1987 - Sharma, 1990	(1) I feel the University has been a helpful organization. (2) I am satisfied my relationship with the University of Tennessee.
		Loyalty	- Sonnerberg, 1994	(1) For the most part, I willingly do what the University asks me to do. (2) I am loyal to the University of Tennessee.
		Long term orientation (Organizational Citizenship)	- Ganesan, 1994	(1) I want to maintain my relationship with the University of Tennessee after I graduate. (2) I feel personal attachment to the University of Tennessee. (3) Sometime in the future, I will donate my money to the University of Tennessee.

Expert Review

For resolving potential wording issues and unexpected secondary meanings of measurement items, an expert review was launched with CCI professors whose opinions and responses were collected. For this review, pre-screening was done to choose the most potentially problematic items among the 74 items. The chosen items ranged from normative to personal dimensions represented by value congruence, general congruence, accepted value system, sharing and delegation of control, dependability, and willingness to rely on. For the most part, the conceptual items' meanings were not clear enough and/or not exclusive enough when compared to other measurement items, particularly when deployed with the other set of measurement items. Moreover, revision was necessary because the chosen items' wordings were formed for other trust studies in other fields. Due to the items' origins, it was assumed that the items could represent another nomological side of trust or even something other than trust. In turn, those spin-off meanings, if any, would result in erroneous interpretations and incorrect data collection. For a week in February, the expert-review session was posted on Survey Monkey, and the survey link was circulated with a faculty member's help. The review consisted of six multiple-choice questions with an open-ended option for each question if participants wanted to provide revision ideas. Higher bid choice options were used with open-end options for those six items to see if the suggestions were replaceable with the current items. The 10 responses were reviewed for the purpose of tweaking the initial set of items regarding suggested wording and voting results.

Phase 1 – Measurement Model Building

Phase 1 was seeking to provide evidence and the foundation for a proper item-selection process to transform into a trust-measurement scale. Based on Valicer and Chou's (1998) guideline of overarching rules of sample size, at least 300 participants were needed to suffice the need for a larger sample size that supports the initial item-selection process. However, some issues needed to be considered. First, it must have been determined if 300 is an effective size of responses. Secondly, to access that size of sample, several access methods were required. (Details in the Procedure section.) Thirdly, a data collection process, for any types of measurement developing studies, requires multiple rounds of data collection as the study progresses. The multiple rounds of data collection, to obtain a proper sample size, are also a key to the CFA steps when using SEM. According to Bentler and Fava's (1987) study, having a ratio of at least 5:1 of participants to each parameter is necessary to obtain acceptable results. By taking the process, Phase 1's chosen items were honed further to stabilize statistical matrices.

Procedure

To obtain the proper size of participants, a certain level of control is necessary in accessing and maintaining a possible sample pool. In other words, a supervised population may work better in terms of completion rate, quality of responses, and possible collectable numbers of participants. For sampling to obtain a proper size of responses, data collection is performed in two different yet popular ways. One is to entrust sampling to third party agencies or a department to outbound e-mails with an invitation to promote participation for a given study. However, this method incurs

varying response rates and low completion rates such as 10% point participations with careless and/or random responses. Regarding the procedure's expected instability when using online data collection method, direct visits to classrooms were chosen to ensure advised participation and to promote completion rate across the entire sample population.

As previously discussed, the sampling procedure and data collection are tied to the progression of item-selection process in its initial stages. The instrument has questions under 41 different constructs. Therefore, the entire participants for the Phase 1 were decided based on Bentler and Fava's (1987) recommended 5:1 of participant-to-parameter ratio, which was to be about 200 participants.

Questionnaire and Data Collection for Phase 1

Two different versions of the questionnaire were prepared for pre- and validation-test purposes. (For questions, refer to Table 5 and Appendix. 2). The pre-test version contained 74 items with very basic demographic information, such as gender, age, and race. This version was tweaked and divided into two sub versions for reliability purposes. The first sub version used 74 measurement items with a 7-point scale ordered from 7 to 1 for "strongly agree" to "strongly disagree," respectively. The second version's questions, although the same as version one's, were randomly mixed so that the second version would not resemble the first. The second version's scale order was also different with one to seven for "strongly disagree" to "strongly agree," respectively. The second version was tweaked to avoid order effect and scale option arrangement's influence. Order effect results when performance on a series of tasks depends on the order in which the tasks are addressed. To confirm that the first version did not have such order effect, the second

version's questions were randomly shuffled for comparison with the first version's. To ensure scale option (seven to one vs. one to seven) did not interfere with participants' responses or promote exaggerated responses (or intentionally driven responses) in a certain direction, the scale option arrangement was different in the first and second versions.

Regarding scale-option selection, some points should be mentioned for further clarification of the scale sensitivity issues discussed above. The length-of-scale option has been thoroughly discussed in many fields for many purposes. However, no rule-of-thumb is known for this particular matter. A seven-point scale, in general, is known to be slightly better to capture responses, especially when there are not many measurement items. In other words, a seven-point scale can generate slightly better variance to questions than a five-point scale. Although this study already had over-loaded numbers of questions, a seven-point scale was used in case the scale option length had to be revised because of any scale-related influences (for example, high skewness and/or kurtosis of data set). As part of theoretical measurement model development, assessing a scale option's property could also be important. As a result, it is a major part of the discussion section, if presented. Unlike scale length, scale order has not received much attention. 'Reverse ordering for negative questions' has been commonly accepted. However, according to Allen and Seaman (2007), Likert scale is a forced choice. If so, further customizing the order of scale option that complies to the positive or negative nature of questions should be avoided. Therefore, the questionnaire for pre-test used the uniform scale option, 7 for positives and 1 for negatives. Another note to add is about

balanced keying of questions (for example, equal number of positively and negatively worded questions) to avoid respondents' bias, such as acquiescence bias (Watson, 1992), whereby respondents tend to agree with what is presented to them. However, this type of keying does not obviate central tendency and social desirability bias, which is more possible in this type of organization-public relationship study. Therefore, the questionnaire only used uniformly worded questions to detect extreme skewness in a positive (or a negative) direction, if presented.

Data-collection sessions for Phase 1 were conducted in two undergraduate classes on February 29 and March 7. In the first session, the first version of the questionnaire was used; and in the second session, the second version was used. The two sessions collected 103 and 53 responses, respectively.

Phase 2 – Measurement Model Validation

Phase 2 was to provide evidence of validation of the formed-trust measurement scale through properly interpreting the results using a different set of sample. In fact, measurement-scale development is partly yet substantially dependent on interpretation of the results.

Empirical research on trust measurement in public relations has been scant; however, a variety of trust concepts have occasionally been mentioned in the literature. In other fields of study, particularly psychology, education, management, and marketing, many attempts have been made to measure trust in various ways compared to trust in the public relations field. To better support and solidify the results from Phase 1, therefore, it has been important to understand and to compare the validation results from several

competing measurement models to choose the most effective measurement-scale model that contributes to public-relations practices. Moreover, instead of simply comparing results based on statistical indices, the model comparison processes also have to be based on knowledge from a mixture of various literature and practical concerns from other fields of study as well as public relations-related studies.

In Phase 2, based on Phase 1's filtrations and interpretations, the chosen measurement-scale model(s) were compared using other sample groups to identify how well the developed scale items function. As mentioned, this session's purpose was to identify the developed measurement scale's adequacy, and to discover how well Phase 1's constructs are supported by other sets of data in order to measure the concept of trust.

Procedure

Since Phase 2 was actually a step to find a certain level of applicability of Phase 1's results with a randomly chosen sample populations, it was regarded better to use a bigger pool of participants for further confirmation that is about dropping parameters or changing measurement models with multiple sample sets for possible enhancement.

Data Collection for Validation Study and the Questionnaire for Phase 2

The second round of data collection was actually a validation group-data collection. Based on reliability test results in the previous steps, the first version of the questionnaire was maintained. While 74 measurement items were unchanged, the validation-test version included student-activity items along with the previous basic demographic items. The student-activity items measured model validation across

different sets of relationship holders, or participants. Items were from the campus-atmosphere scale (Lounsbury, 2010). To understand students' social environment and morale on campus in conjunction with their own social situation, the scale has the following evaluation sections: college and the university, student-activity check list, college-environment items, reasons for choosing the college/university, quality-of-life items, campus- alienation items, and participation scale.

For comparison purposes, this validation study used several items from the scales, including the evaluation of the college and the university, student-activity check list, college environment items, reasons for choosing the college/university, and participation scale. (Table 6.)

Table 6. Student Activity Check List

	Purpose of the Questions	Types of Scale
Activity check list	List of student activities and living circumstances	Binary: Yes or No (Multiple responses)
Emphasis	Experiential values the University emphasizes	7-point scale evaluative
Reasons choosing the University	Reasons for choosing UT	Binary: Yes or No (Multiple responses)
Participation scale	Frequency of participation	7-point scale descriptive

The literature review mentioned that human perception is uneven. Even though people have the same base for a particular type of belief, having a similar magnitude in evaluating an object is technically impossible. Participants and/or parties in relationships may hold simultaneously different views that could generate a certain level of inconsistencies (Moran-Tschannen & Hoy, 2000). Therefore, relationships are assumed

to have many diversified characteristics. Nested in the view, Ledingham and Brunig (1998) culled five dimensions of relationship: involvement, openness, investment, trust, and commitment. Items deployed from the atmosphere scale are assumed to be relevant to three of Ledingham and Brunig's five dimensions: involvement, investment, and commitment.

Based on the five dimensions culled, the evaluation of a college/university and reasons for choosing a college/university were appeared close to the commitment dimension. The student-activity check list and participation scale were appeared close to investment and openness. College- environment items were assumed to be relevant to involvement. These grouping variables were understood theoretically related and were used to validate the final measurement model. Other than the difference, key elements of the questionnaire remained the same throughout the data-collection period.

Data Collection

Data for validation was collected on March 15 and April 3. Using two undergraduate classes, 104 responses and 40 responses, respectively, were collected respectively. Again, the same questionnaire was used with the different grouping variables described in the previous section.

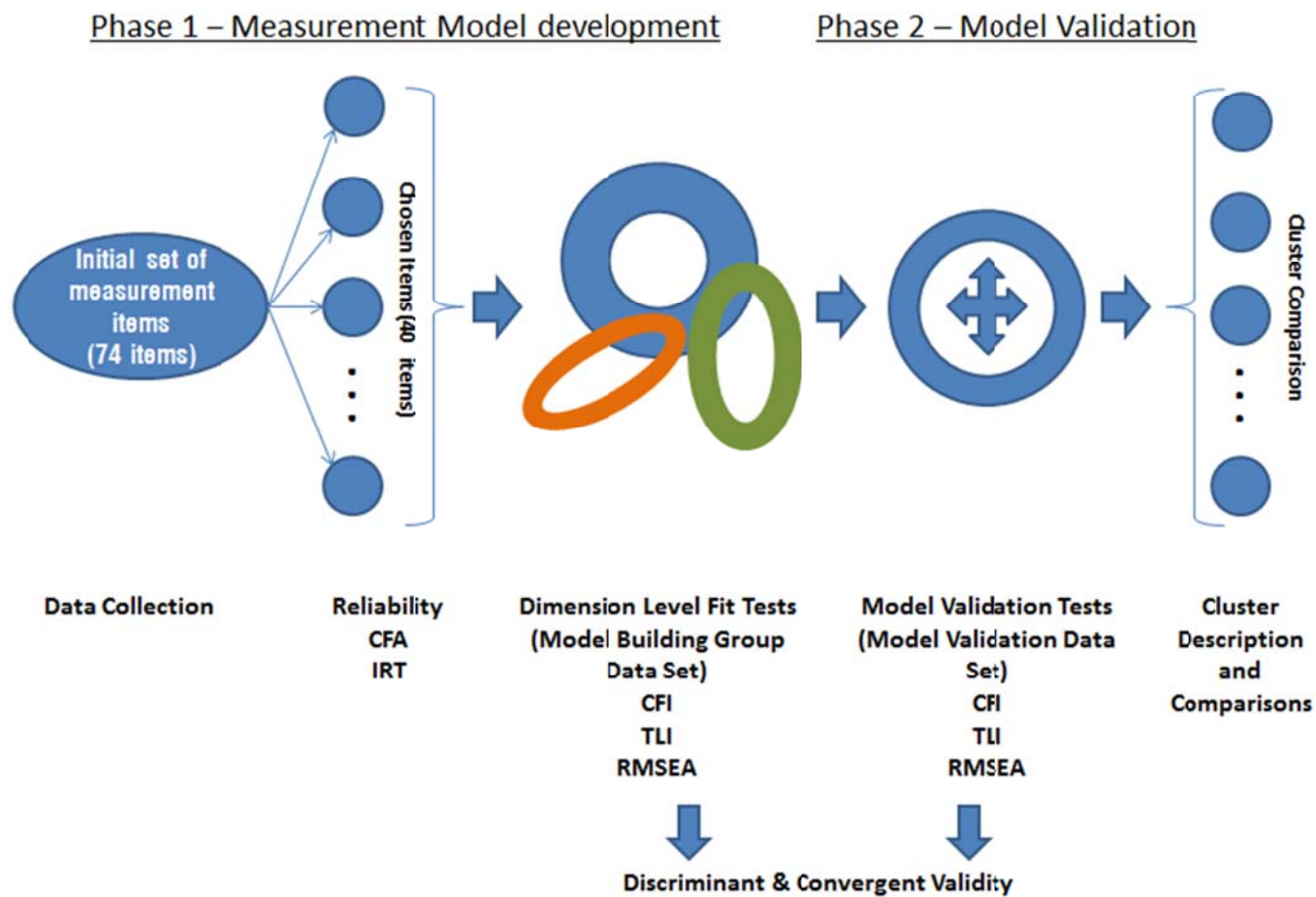
Overview of the Analysis Process

This analysis section consists of two steps: the model selection study and the model validation study. Phase 1 examined the descriptive nature of a data set. This session checked all variables' simple frequencies, univariate normality, and multivariate normality to describe the data set's nature and to find any abnormality of the data set. Using the information obtained through the descriptive process, Phase 1 moved to item analysis based on the classic test theory (CTT hereafter), which reveals the responses' reliability and consistency and then invites confirmatory analysis to see how the items are functioning together under pre-disposed theoretical relationships among constructs. Along with this confirmatory step, results from the item response theory test (IRT hereafter) are referenced as supplementary information to cross validate the confirmatory process. IRT has different characteristics that supplement or even excel CTT by evaluating a construct at an individual-item level. More details are discussed in the section on confirmatory analysis. The set of processes were conducted for each construct in a dimension to select the best items for each construct and for a dimension. After saturating each dimension with available best items, Phase 1 tested each dimension's conformity level through confirmatory analysis. Most important in this step was identifying the constructs' relationship with a designated dimension. Therefore, Phase 1, which used 156 participants, did not perform individual fit tests for each construct except for limited addition of fit test results from IRT.

After a measurement model was built, the model validation process was undertaken in Phase 2, whose purpose was to understand how well the chosen model(s)

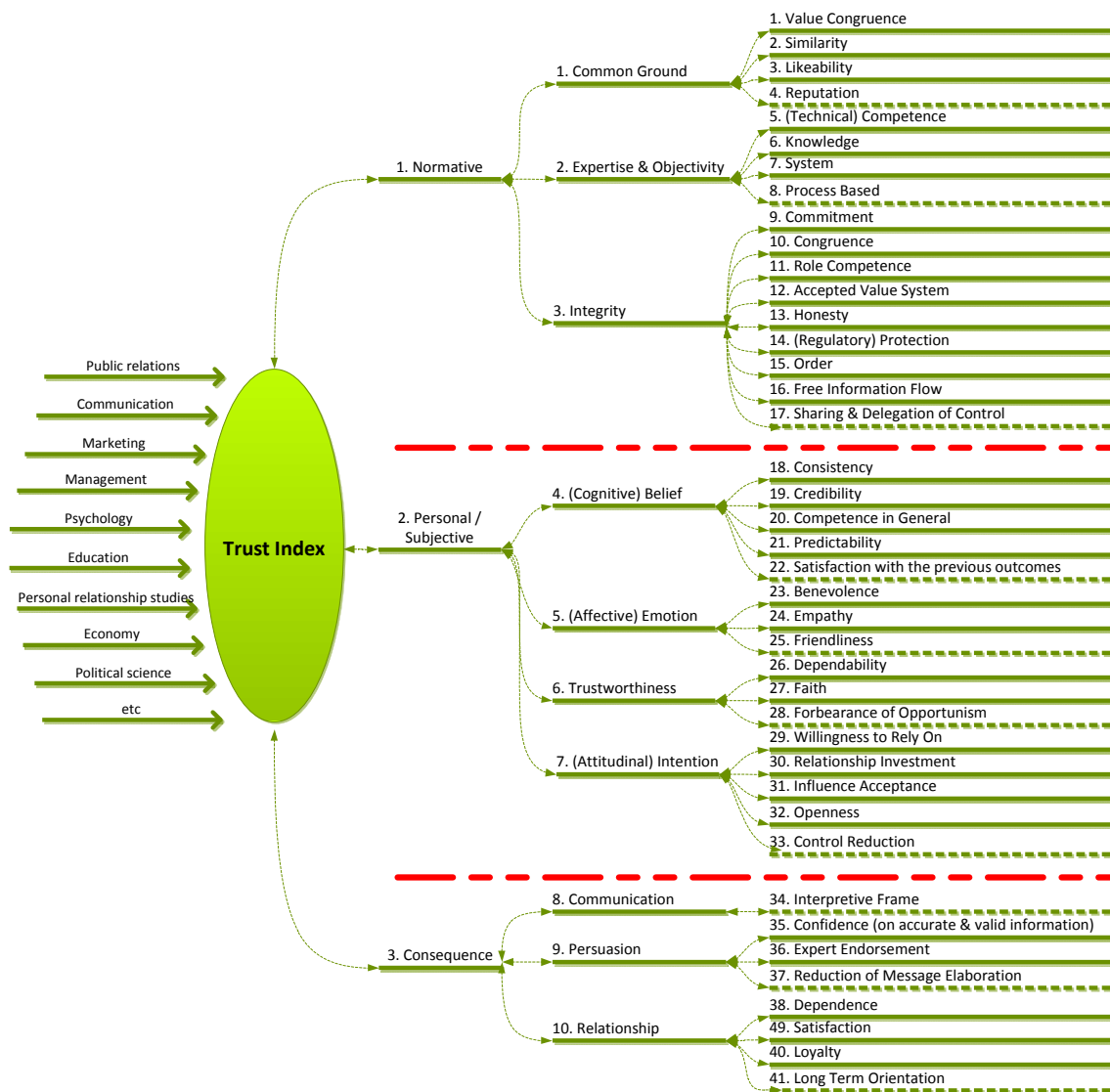
worked toward a different data set. Various fit measures were used to understand the model(s)' performance. Figure 3 explains the entire process the result session has followed.

Figure 3. Model Building and Model Validation Process



Along with this statistical validation, Phase 2 also addressed the types and spectrum of information the chosen model provided when using its composite score. For these purposes, Phase 2, consisting of 140 participants, used a questionnaire containing items evaluating student activity and involvement. Figure 4 explains the instruments used in Phase 1 and Phase 2.

Figure 4. Concept Layout – Measurement Items



CHAPTER 4

ANALYSIS RESULTS AND FINDINGS

Phase 1 – Measurement Model Building

Reliability Test Results

Since the first and second sets of questionnaires were significantly modified for comparison purposes, the following analysis was based on a group classification. In sum, both versions of tests showed relatively high reliability scores (for example, greater than .80 alpha for all tested constructs). Moreover, when the two groups of responses were compared, no significant difference was found.

Data Description

A total of 156 participants were collected from two undergraduate classes on February 29th and March 7th. The sample groups consisted of University of Tennessee undergraduate students whose ages ranged from 19 to 35 and whose majors also varied. The participants were dominantly female (male (n=54, 34.8%) vs. female (n=101, 65.2%)) and dominantly white (n=137, 87.8%).

A variable normality test was conducted using NCSS2007. Except for a few variables (PCC1, PCCR2, PAEE2, PTD3, PIRI1, and CRD1), the variables were non-normally distributed. Therefore, the data set was not multi-variate normal. Based on these findings, the following analysis used proper transformation and rotation methods to treat the data set's non-normality.

Reliability Tests

Reliability in measurement scale development is a representation of how consistent the respondents are to the tested items. This study conducted two sessions of data collection among tested groups to check for any significant difference in consistency (reliability) and response to the changes on the questionnaire. Summarizing the two groups' reliability-test results, the Table 7 shows that the reliability scores were all higher than .80 overall.

Table 7. Reliability Test Results – 1st and 2nd Data Collection for Phase 1

Dimensions	Constructs	Cronbach's Alpha		N of Items
		1 st Collection (n=103)	2 nd Collection (n=53)	
Normative	Common Ground	.888	.887	9
	Expertise and Objectivity	.876	.923	8
	Integrity	.929	.911	15
Personal	(Cognitive) Belief	.901	.877	7
	(Affective) Emotion	.887	.889	4
	Trustworthiness	.923	.941	9
	(Behavioral) Intention	.880	.858	6
Consequences	Communication	N/A	N/A	1
	Persuasion	.869	.896	5
	Relationship	.919	.910	10

In general, at least three items per construct are regarded as a safe line, but the Communication construct in the Consequences dimension had only one measurement item. Although the condition of number of items per construct did not meet the criteria for construct building, Communication was left as a stand-alone item based on a

theoretically designed nomological network. As a theoretical model, it sought rationales of theoretical relationship among and between constructs. For this reason, Communication required further validation to see if it lacked evidence supporting the described theoretical relationship with its dimension. This process is called measurement model validation. For statistical rigor, the analysis requires different participants to understand how a construct fits in or with theoretically relevant constructs or dimensions of interest. Treating the construct Communication as one of the drop-out item/constructs until further validated was not the best decision.

For further assurance, the first and second groups' responses were compared to determine if any significant difference existed, mainly because of the difference in sample size, 103 versus 53. When an independent sample t-test was performed at an item level using two groups, no significant difference resulted between. Although a few items from each construct (cognitive belief, affective emotion, trustworthiness and intention in personal dimension) showed a significant difference, this result does not necessarily obviate the fact that a single problematic item in a construct can represent a construct's validity. (Please refer to Table 8.) Moreover, a noticeable difference in sample size is also a reason for incapability of overcoming respondents' characteristics. Furthermore, significant differences found on some items mostly belong to the personal dimension, in which diversified responses may be expected based on an individual's personal experience. Therefore, the items were kept in the designated constructs for further analysis and for validation with a different set of participants.

Based on the results, the questionnaire used in the first and second data collections were assumed to obtain a proper reliability level regarding the consistency of responses. This intermediary conclusion also indicated that changing or further tweaking the questionnaire based on reliability test results was unnecessary.

Table 8. T-Test Results (1st and 2nd Data Collection)

Dimension	Construct	Item		<i>P value</i>
Normative	Common Ground	Similarity	The values of the University are similar to mine.	.003
	Expertise & Objectivity	(Technical) Competence	The University has the competence to accomplish its goals.	.001
Personal	(Cognitive) belief	Consistency	The University's actions are consistent with its stated intentions.	.010
		Competence in general	People at the University of Tennessee do their job well.	.026
		Predictability	I know what to expect from the University of Tennessee.	.014
	(Affective) Emotion	Empathy	The University acts in the best interests of students.	.030
	Trustworthiness	Dependability	I can depend on the University of Tennessee.	.003
		Confidence in Organization	I trust the University of Tennessee.	.048
			I have a good deal of faith in the University as a whole.	.009
			I tend to assume the best about the University of Tennessee.	.007
	Intention	Willingness to rely on	The University looks out for what is important to me.	.015
		Relationship Investment	The University makes efforts to maintain a relationship with me.	.012

Confirmatory Factor Analysis

This section discusses the confirmatory factor analysis results of each construct (a collection of measurement items) and of each dimension (a collection of constructs of interest). A two-step flow analysis design, item analysis through confirmatory factor analysis was used to choose the best items explaining a given construct and dimension based on fit tests supporting the measurement model's theoretical design. For the confirmatory steps, SPSS factor analysis was used to isolate and choose strong measurement items, and IRT's uni-dimensional analysis was used to cross reference the findings from the confirmatory analysis. Providing item-level insight when developing a measurement model, the IRT test assumes that construct items have a uni-dimensional relationship with a given construct. Based on this assumption, this test provides two parameters (*A* and *B*) to understand how the chosen items fit into a construct of interest. *A* parameter, or Akaike Information Criterion (*AIC*), is a measure of the relative goodness of fit that provides a relative measure of information lost when a given model is used to describe reality. Although 1 or greater value is regarded as acceptable, acceptance or rejection is largely dependent on a mixed evaluation with *B* parameter, Bayesian Information Criterion (*BIC*), which indicates whether to add parameters (scale options) to increase the likelihood of fitting for a model using a penalty term. The following examples show that a strong item has a comparatively bigger *A* parameter value and a wider transition (increment or decrement) value from one *B* parameter value to another. Transition values in the *B* parameter section are shown in the following diagram.

Along with this item-level analysis, IRT provides goodness-of-fit indices for a tested construct. This information is helpful in deciding what items must be kept while others are not. The confirmatory analysis section of this study, therefore, used confirmatory factor analysis and IRT for cross-reference purposes. IRTPRO student version that is offered as a free download with some restrictions, 25 maximum variables for a construct.

Figure 5. Examples of Strong and Weak Items Using IRT Response Graphs

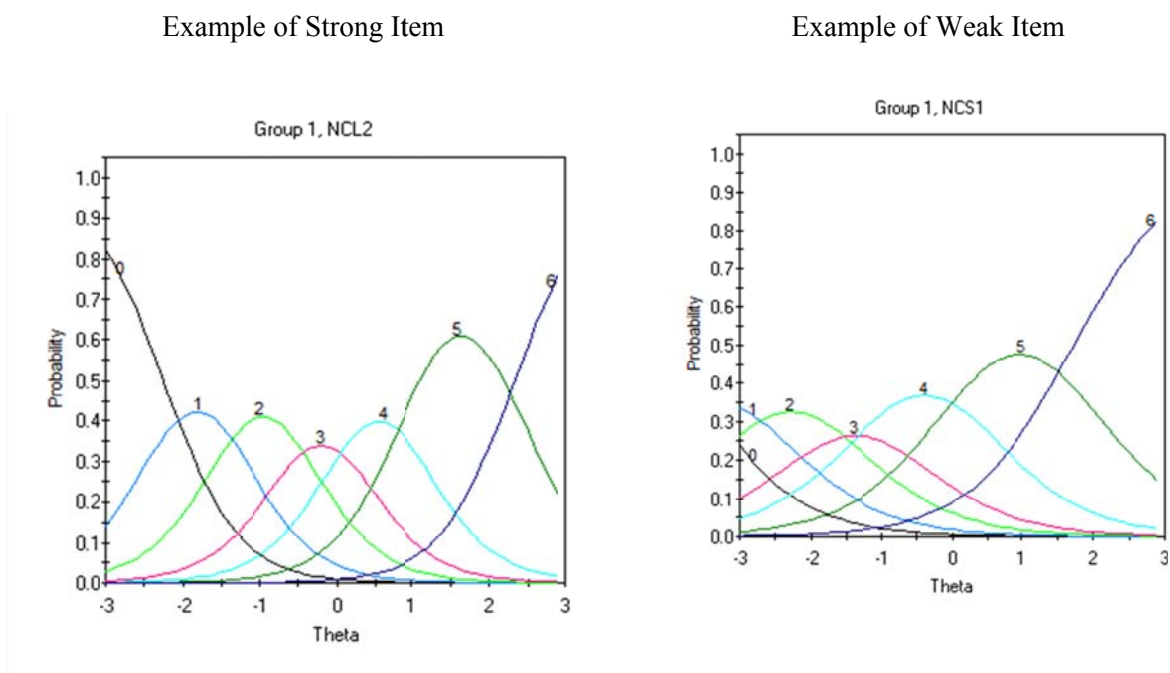


Table 9. Example of IRT Test Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$														
Label	a	s.e.	b_1	s.e.	b_2	s.e.	b_3	s.e.	b_4	s.e.	b_5	s.e.	b_6	s.e.
NCS1	² ₁ 1.3 4	0.24	-3.87	0.72	-2.78	0.43	-1.78	0.26	-0.97	0.18	0.19	0.21	1.73	0.40
NCL2	⁴ ₂ 2.0 7	0.38	-2.26	0.29	-1.38	0.17	-0.54	0.13	0.14	0.17	0.96	0.26	2.33	0.45

When performing fit tests for each dimension and for an entire measurement model, this study used AMOS 19, based on the structural equation modeling (SEM hereafter) process with bootstrapping options. This process was necessary because, as previously mentioned, the data set had non-normality distribution. AMOS 19 only provides an “asymptotically distribution free” option for treating non-normality of any given data set. Unfortunately, however, the option has a tendency to yield a bigger sample size. Therefore, supporting evidence, using data transforming options, is required.

For the purpose of choosing the best items, recommended guidelines were followed. First, .7 or lower factor loading scored items were on a drop list. However, if an item was critically important to a construct and a desired nomological network that the models searched for, the item was tested as it was nested in a dimension to determine if it was a component of competing models. Even after obtaining acceptable factor loading values, if the score was relatively lower compared with other items in a construct, it was also in a dimension test as a part of competing models for further decision. In selecting the best items for competing model(s), IRT results were used for cross-referencing. Dimension fit tests were also conducted with two options: best possible fit or best possible theoretical structure. The best possible fit sometimes yields the reality and stability of a measurement model’s theoretical structure. On the other hand, a best possible theoretical structure sometimes yields statistical rigor. An ideal situation happening less frequently would be both ends meeting. Therefore, regarding the limited sample size and this study’s purpose to develop a theoretical measurement model,

reconciling both possibly conflicting requirements might have become important. However, this study was more inclined to choose the best possible theoretical model(s).

A non-normality data set was used. It, of course, could be natural to any data set unless the sample size is larger than what an academic environment usually provides. Therefore, a single test method was not entirely relied on because of no existence of guarantee that the fit results and the resultant item sets would be consistent dimensionally with new data sets. In an effort to increase consistency, it is better to approach required analysis process with more than one tool that is regarded to have a better aptitude to the characteristics of the data set, non-normality. To compensate for these issues, AMOS 19 and NCSS2007 were used for cross-reference purposes, if necessary.

Common Ground-Nomative. This construct has nine measurement items categorized as value congruence (two NCVC items), similarity (two NCS items), likeability (three NCL items), and reputation (two NCR items). Confirmatory analysis was performed using all nine items, and the results are shown as follows.

As shown in the eigenvalue table, factor 1 took 53% of variance using the given measurement items (eigenvalue = 4.791). In general, .7 or greater factor loading is regarded as a rule of thumb yielding .5 or greater communalities. Referred to as a factor matrix, however, weak factor loading (indicated with ***bold, italic*** numbers) and cross-loaded items (indicated with ***bold, red*** numbers) are included in the following Table 10.

Table 10. Initial Factor Matrix

	Factor Matrix ^a	
	Factor	
	1	2
NCVC1	.788	.144
NCVC2	.789	-.077
NCS1	.516	-.078
NCS2	.782	.095
NCL1	.782	-.227
NCL2	.728	-.338
NCL3	.568	-.317
NCR1	.601	.406
NCR2	.652	.432

Extraction Method: Maximum Likelihood.

Based on IRT results, the construct's items were under fitted. As indicated in the following table, NCS1 ($a=1.34$, $s.e.=.24$), NCL3 ($a=1.30$, $s.e.=.26$), NCR1 ($a=1.33$, $s.e.=.26$), and NCR2 ($a=1.51$, $s.e.=.29$) had relatively weak *A parameter* values. (Table 11.)

Table 11. Initial IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$

Item	Label	a	$s.e.$	b_1	$s.e.$	b_2	$s.e.$	b_3	$s.e.$	b_4	$s.e.$	b_5	$s.e.$	b_6	$s.e.$
1	NCVC1	2.61	0.41	-3.11	0.48	-2.26	0.26	-1.61	0.17	-0.80	0.13	0.11	0.18	1.39	0.29
2	NCVC2	2.69	0.45	-2.25	0.26	-2.00	0.22	-1.14	0.13	-0.35	0.14	0.58	0.22	2.15	0.39
3	NCS1	1.34	0.24	-3.87	0.72	-2.78	0.43	-1.78	0.26	-0.97	0.18	0.19	0.21	1.73	0.40
4	NCS2	2.61	0.46	-2.64	0.35	-1.83	0.20	-1.36	0.14	-0.22	0.15	0.59	0.22	1.73	0.35
5	NCL1	2.32	0.43	-2.23	0.27	-1.78	0.20	-0.94	0.13	-0.40	0.13	0.57	0.22	1.68	0.35
6	NCL2	2.07	0.38	-2.26	0.29	-1.38	0.17	-0.54	0.13	0.14	0.17	0.96	0.26	2.33	0.45
7	NCL3	1.30	0.26	-3.65	0.69	-2.45	0.40	-1.14	0.20	-0.25	0.17	1.09	0.31	2.81	0.60
8	NCR1	1.33	0.26	-4.44	0.99	-3.12	0.54	-2.10	0.32	-0.98	0.18	0.23	0.21	1.93	0.44
9	NCR2	1.51	0.29	-3.27	0.58	-1.97	0.29	-1.08	0.17	0.26	0.20	1.80	0.40		

Considering the under-fitted items, general goodness of fit in *AIC* and *BIC* were big enough to reconsider a proper fit of this nine-item construct. (Table 12.)

Table 12. Initial IRT Fit Matrices

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	4188.84
<i>Akaike Information Criterion (AIC):</i>	4312.84
<i>Bayesian Information Criterion (BIC):</i>	4505.03

The two tests' information was combined to modify the construct for a better combination. When the confirmatory factor analysis was repeated without NCS1, NCL3, NCR1, and NCR2, the overall factor loading improved with an eigenvalue of 3.416. (Table 13.)

Table 13. Factor Loading Comparison

Factor Matrix^a	
	Factor
	1
NCVC1	.784
NCVC2	.819
NCS2	.774
NCL1	.787
NCL2	.721

Extraction Method: Maximum Likelihood.

Based on the IRT results, this construct's overall fit also improved. Specifically, *AIC* was reduced from 4312.84 to 2378.57 when comparing the five-item construct with the full nine-item construct. *BIC* also decreased from 4505.03 to 2487.07. Therefore, the construct fit improved overall. (Table 14.)

Table 14. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	2308.57
<i>Akaike Information Criterion (AIC):</i>	2378.57
<i>Bayesian Information Criterion (BIC):</i>	2487.07

However, NCR items representing an organization's reputation had to be reconsidered. Since an organization's reputation is an important part of public side evaluation, eliminating all reputation-related items simply based on a factor loading value or a fit index was not advisable. Therefore, the NCR2 (Factor loading = .600, *A parameter* = 1.51) was chosen to rejoin the construct. The new test's results are shown on the Table 15.

Table 15. Factor Loading Comparison

Factor Matrix^a	
	Factor
	1
NCVC1	.806
NCVC2	.815
NCS2	.785
NCL1	.772
NCL2	.700
NCR2	.600

Extraction Method: Maximum Likelihood.

Although NCR2 decreased the *A parameter* value of NCL2 (from 2.07 to 1.98) and slightly loosened the construct's entire fit, NCR2 was kept in this construct until further dimension fit tests were done. (Table 16. & Table 17.)

Table 16. IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$															
Item	Label	<i>a</i>	s.e.	<i>b</i> ₁	s.e.	<i>b</i> ₂	s.e.	<i>b</i> ₃	s.e.	<i>b</i> ₄	s.e.	<i>b</i> ₅	s.e.	<i>b</i> ₆	s.e.
1	NCVC1	^{2.72}	0.38	-3.07	0.47	-2.25	0.27	-1.60	0.19	-0.77	0.13	0.13	0.11	1.35	0.17
2	NCVC2	^{3.09}	0.45	-2.18	0.24	-1.94	0.21	-1.10	0.14	-0.32	0.11	0.56	0.13	2.08	0.25
3	NCS2	^{2.59}	0.36	-2.64	0.34	-1.85	0.22	-1.36	0.17	-0.21	0.12	0.58	0.12	1.71	0.20
4	NCL1	^{2.28}	0.32	-2.25	0.26	-1.78	0.21	-0.93	0.14	-0.39	0.12	0.59	0.14	1.68	0.22
5	NCL2	^{1.98}	0.27	-2.32	0.28	-1.41	0.18	-0.53	0.13	0.16	0.13	0.97	0.17	2.37	0.33
6	NCR2	^{1.42}	0.22	-3.41	0.57	-2.05	0.31	-1.11	0.21	0.28	0.15	1.86	0.28		

Table 17. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	2748.53
Akaike Information Criterion (AIC):	2830.53
Bayesian Information Criterion (BIC):	2957.62

Expertise and Objectivity – Normative. With the same procedural rigor, confirmatory factor analysis was conducted with eight measurement items: knowledge related (NEOK1 and NEOK2), (technical) competence related (NEOTC1, NEOTC2, NEOTC3), system related (NEOS2), and process-based related (NEOP1 and NEOP2).

NEOS2, NEOP1, and NEOP2 showed weak factor loadings (.273, .227, and .482, respectively) while NEOTC 2 and NEOTC3 showed relatively weak factor loadings. The eigenvalue for the first and second factor loadings were 4.704 and 1.146, respectively.

Moreover, the construct consisted of the following cross-loaded items: NEOTC1, NEOTC2, NEOTC3, NEOS2, NEOP1, and NEOP2. (Table 18.)

Table 18. Initial Factor Matrix

Factor Matrix ^a		
	Factor	
	1	2
NEOK1	.999	-.005
NEOK2	.868	.151
NEOTC1	.708	.530
NEOTC2	.634	.555
NEOTC3	.682	.464
NEOS2	.273	.428
NEOP1	.227	.521
NEOP2	.482	.471

Extraction Method: Maximum Likelihood.

Generally, cross-loaded items in a factor structure are regarded as weak and are eliminated or receive further treated, such as data transformation. To further elaborate on a required decision, IRT results were referred.

Table 19. Initial IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$

Item	Label	A	s.e.	b_1	s.e.	b_2	s.e.	b_3	s.e.	b_4	s.e.	b_5	s.e.	b_6	s.e.
1	NEOK1	⁷ 2.98	0.41	-2.95	0.44	-2.01	0.22	-1.68	0.18	-1.17	0.14	-0.24	0.11	1.10	0.14
2	NEOK2	¹⁴ 2.74	0.38	-3.06	0.48	-2.02	0.23	-1.68	0.18	-1.03	0.13	-0.12	0.11	1.30	0.16
3	NEOTC1	²⁰ 4.68	0.75	-2.22	0.24	-1.92	0.19	-1.14	0.12	-0.08	0.10	1.21	0.14		
4	NEOTC2	²⁷ 3.23	0.43	-2.83	0.39	-2.37	0.27	-1.66	0.17	-1.02	0.12	-0.10	0.10	1.12	0.14
5	NEOTC3	³⁴ 3.71	0.52	-2.77	0.38	-2.54	0.32	-1.71	0.17	-1.16	0.13	-0.24	0.10	1.08	0.13
6	NEOS2	⁴¹ 1.29	0.20	-4.51	0.94	-3.42	0.57	-2.32	0.35	-1.53	0.24	-0.32	0.15	1.30	0.23
7	NEOP1	⁴⁸ 1.10	0.18	-4.49	0.90	-2.86	0.48	-1.71	0.30	-0.40	0.18	1.21	0.25	3.05	0.53
8	NEOP2	⁵⁵ 1.93	0.26	-3.50	0.61	-2.88	0.41	-2.20	0.28	-1.06	0.16	-0.03	0.12	1.52	0.20

NEOS2 ($\alpha=1.29$, $s.e.=.20$), NEOP1 (1.10 , $s.e.=.18$), and NEOP2 ($\alpha=1.93$, $s.e.=.26$) appeared as weak items in the pool. (Table 19.) The fit indices for this construct are as shown on Table 20.

Table 20. Initial IRT Fit Matrices

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	3150.60
<i>Akaike Information Criterion (AIC):</i>	<i>3260.60</i>
<i>Bayesian Information Criterion (BIC):</i>	<i>3431.09</i>

AIC and *BIC* decreased after problematic items (NEOS2, NEOP1, and NEOP2) were eliminated. However, necessity for the measurement item had a different scenario. NEOS represents an individual's predisposition toward an organization that the organization has been structured and functions in a certain way, a systematic way, so that an individual would not experience un-organized and arbitrary behavior of an organization. Moreover, system related is a single-item concept that might be incapable of capturing proper responses. The NEOP items, however, represent an organization's process-based functions similar to an NEOS item in terms of the organization's characteristics.

Therefore, among NEOS and NEOPs, one of the NEOP items remained for further testing. (Table 21.)

Table 21. Factor Loading Comparison

Factor Matrix^a	
	Factor
	1
NEOK1	.861
NEOK2	.849
NEOTC1	.857
NEOTC2	.806
NEOTC3	.833
NEOP2	.624

Extraction Method: Maximum Likelihood.

Although NEOP2 still showed a weak loading value, goodness of fit actually decreased from 3260.60 (*AIC*) and 3431.09 (*BIC*) to 2280.47 and 2407.56, respectively, which were closer to the first dimension's fit indices. (Table 22.)

Table 22. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	2198.47
<i>Akaike Information Criterion (AIC):</i>	2280.47
<i>Bayesian Information Criterion (BIC):</i>	2407.56

Integrity-Normative. This construct is composed of 15 categories: commitment (NIC items), congruence (NICON item), role competence (NIRC items), accepted value system (NIAVS items), honesty (NIH items), regulatory protection (NIRP item), order

(BIO items), free information flow (NIFIF items), and sharing and delegation of control (NISDC item).

Table 23. Initial Factor Matrix

	Factor Matrix^a		
	Factor		
	1	2	3
NIC1	.738	-.337	.040
NIC2	.853	-.331	-.230
NICON1	.761	-.239	-.151
NIRC1	.758	-.186	.327
NIRC2	.724	-.152	.408
NIAVS1	.664	.106	.182
NIAVS2	.613	.116	.151
NIH1	.668	.137	.226
NIH2	.735	.247	.172
NIRP1	.703	.288	.160
NIO1	.704	.494	-.088
NIO2	.655	.525	-.123
NIFIF1	.614	.238	-.342
NIFIF2	.479	.277	-.102
NISDC1	.437	.240	-.198

Extraction Method: Maximum Likelihood.

Three factors were loaded with an eigenvalue of 7.491, 1.573, and 1.071, respectively. However, the number of cross-loaded items was observed with weak item factor loadings, NIAVS1, NIAVS2, NIO2, NIFIF1, NIFIF2, and NISDC1. (Table 23.)

IRT, however, rendered different analysis results. NIC1 ($a=1.92$, $s.e.=.26$) and NIRC2 ($a=1.95$, $s.e.=.26$) were also added to the weak-item list. The goodness-of-fit indices are identified below. (Table 24. & Table 25.)

Table 24. Initial IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$																
Item	Label		<i>a</i>	<i>s.e.</i>	<i>b</i> ₁	<i>s.e.</i>	<i>b</i> ₂	<i>s.e.</i>	<i>b</i> ₃	<i>s.e.</i>	<i>b</i> ₄	<i>s.e.</i>	<i>b</i> ₅	<i>s.e.</i>	<i>b</i> ₆	<i>s.e.</i>
1	NIC1	⁷	1.92	0.26	-3.44	0.61	-2.51	0.33	-1.72	0.21	-0.82	0.13	0.24	0.13	2.06	0.28
2	NIC2	¹⁴	2.35	0.29	-2.52	0.32	-2.16	0.25	-1.42	0.16	-0.60	0.11	0.37	0.12	1.73	0.22
3	NICON1	²²	2.07	0.27	-3.28	0.56	-2.94	0.44	-2.23	0.27	-1.61	0.19	-0.67	0.12	0.37	0.13
4	NIRC1	²⁹	2.32	0.30	-3.06	0.49	-2.37	0.29	-1.54	0.17	-0.88	0.12	0.13	0.11	1.35	0.18
5	NIRC2	³⁵	1.95	0.26	-2.76	0.39	-1.79	0.21	-1.19	0.15	0.12	0.12	1.76	0.24		
6	NIAVS1	⁴²	1.83	0.25	-3.10	0.48	-2.69	0.37	-1.81	0.23	-0.99	0.15	0.04	0.12	1.87	0.26
7	NIAVS2	⁴⁹	1.94	0.27	-3.46	0.64	-2.77	0.39	-2.15	0.27	-1.69	0.20	-0.57	0.12	0.79	0.16
8	NIH1	⁵⁵	2.56	0.33	-2.96	0.47	-1.84	0.20	-0.94	0.12	0.11	0.11	1.57	0.20		
9	NIH2	⁶³	2.98	0.38	-2.78	0.41	-2.47	0.30	-2.06	0.22	-1.52	0.15	-0.72	0.10	0.10	0.16
10	NIRP1	⁷¹	2.69	0.35	-2.91	0.45	-2.58	0.34	-2.04	0.22	-1.76	0.18	-1.09	0.13	-0.18	0.15
11	NIO1	⁷⁹	2.18	0.28	-3.19	0.54	-2.60	0.34	-2.09	0.25	-1.30	0.16	-0.49	0.11	0.24	0.21
12	NIO2	⁸⁷	2.22	0.29	-3.12	0.51	-2.52	0.32	-2.00	0.23	-1.35	0.16	-0.72	0.12	0.09	0.21
13	NIFIF1	⁹⁵	1.55	0.22	-3.93	0.76	-2.44	0.34	-1.82	0.24	-0.91	0.16	-0.04	0.13	0.78	0.35
14	NIFIF2	¹⁰³	1.23	0.19	-4.64	1.00	-3.68	0.65	-3.43	0.58	-1.80	0.28	-0.37	0.16	0.63	0.37
15	NISDC1	¹¹⁰	1.12	0.19	-2.39	0.39	-1.27	0.23	-0.34	0.17	0.78	0.21	2.10	0.37	3.86	0.71

Table 25. Initial IRT Fit Matrices

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	6536.27
Akaike Information Criterion (AIC):	6756.27
Bayesian Information Criterion (BIC):	7097.25

This construct seemed more likely to be a multiple-factor structure. Therefore, an exploratory factor analysis was required to check for latent factor structures after the weakest items (NIC1, NIRC2, NIAVS1, NIAVS2, NIFI1, NIFI2 and NISDC1) were eliminated, using information from confirmatory analysis and IRT results. However, the

second test results were not clear enough to determine whether another factor structure existed. Based on an option of extracting three factors, the following table shows the results. The eigenvalue was 4.727 and 1.083 respectively, which indicates two factor structures. Cross-loaded items were visible, rather than clear evidence of the second structure's existence. (Table 26. / The shaded area is with disqualified eigenvalue.)

Table 26. Factor Loading Comparison

Factor Matrix^a			
	Factor		
	1	2	3
NIC2	.808	-.134	.094
NICON1	.895	-.377	-.037
NIRC1	.736	-.048	.181
NIH1	.588	.350	.449
NIH2	.690	.474	.338
NIRP1	.669	.374	.034
NIO1	.690	.532	-.296
NIO2	.638	.467	-.318

Extraction Method: Maximum Likelihood.

Although IRT results showed somewhat improved goodness-of-fit indices, *AIC* and *BIC* did not show reasonable values compared to the other two constructs. (Table 27.)

Table 27. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	3435.40
<i>Akaike Information Criterion (AIC):</i>	3555.40
<i>Bayesian Information Criterion (BIC):</i>	3741.39

To solve this issue, this construct had to be viewed from a different perspective. Regarding this construct's conceptual structure, people's general expectations were a combination of an organization's expected personality and expected systematized behavior. Therefore, the two different constructs had to undergo a confirmatory factor analysis: *internal resource integrity* (referred to the personality of an organization) and *external resource integrity* (referred to as systematized organization behavior).

Integrity - Expectation. This spin-off construct consists of commitment (NIC items), congruence (NICON item), role competence (NIRC items), and honesty (NIH items). Hence, the construct was named expected Integrity (or integrity expectation), based on the items' characteristics. Confirmatory factor analysis was performed, and single factor was loaded with an eigenvalue of 3.937. Except for NIH2 (.657), items in the matrix showed values greater than .7 overall. (Table 28.)

Table 28. Initial Factor Matrix

Factor Matrix ^a	
	Factor
	1
NIC1	.790
NIC2	.810
NICON1	.734
NIRC1	.807
NIRC2	.796
NIH2	.657

Extraction Method: Maximum Likelihood.

To assure the confirmatory results, IRT was conducted. In conjunction with the factor loadings, IRT showed relatively favorable *A parameter* values. However, NIH2

again appeared as a weak item again. Goodness-of fit-indices were relatively smaller: *AIC* (2586.25) and *BIC* (2719.55). (Table 29 & Table30.)

Table 29. Initial IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$																		
Item	Label		a	s.e.	b1	s.e.	b2	s.e.	b3	s.e.	b4	s.e.	b5	s.e.	b6	s.e.	b7	s.e.
1	NIC1	⁷	2.80	0.39	-3.05	0.49	-2.25	0.27	-1.53	0.17	-0.73	0.12	0.22	0.12	1.80	0.21		
2	NIC2	¹ ₄	3.15	0.47	-2.42	0.31	-2.07	0.24	-1.34	0.15	-0.57	0.11	0.37	0.12	1.61	0.19		
3	NICON1	² ₂	2.54	0.34	-3.10	0.50	-2.82	0.40	-2.14	0.25	-1.50	0.17	-0.61	0.12	0.35	0.12	1.47	0.19
4	NIRC1	² ₉	3.27	0.51	-2.89	0.43	-2.21	0.25	-1.42	0.14	-0.78	0.11	0.14	0.11	1.25	0.16		
5	NIRC2	³ ₅	2.50	0.38	-2.58	0.34	-1.66	0.18	-1.11	0.14	0.08	0.12	1.60	0.21				
6	NIH2	⁴ ₃	1.78	0.25	-3.61	0.65	-3.22	0.51	-2.64	0.36	-1.89	0.24	-0.85	0.15	0.13	0.13	1.51	0.22

Table 30. Initial IRT Fit Matrices

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	2500.25
<i>Akaike Information Criterion (AIC):</i>	2586.25
<i>Bayesian Information Criterion (BIC):</i>	2719.55

Based on the combined results from the confirmatory analysis and IRT, NIH2 was dropped, and the sets of analyses were performed again. (Table 31)

Table 31. Factor Loading Comparison

Factor Matrix ^a	
	Factor
	1
NIC1	.792
NIC2	.794
NICON1	.725
NIRC1	.821
NIRC2	.803

Extraction Method: Maximum Likelihood.

The confirmatory factor analysis showed one factor loading at an eigenvalue of 3.480. Goodness of fit from IRT improved from 2586.25 (*AIC*) and 2719.55 (*BIC*) to 2131.43 and 2239.93, respectively. (Table 32)

Table 32. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	2061.43
<i>Akaike Information Criterion (AIC):</i>	2131.43
<i>Bayesian Information Criterion (BIC):</i>	2239.93

Observed Integrity. This spin-off construct has these characteristics: accepted value system (NIAVS items), regulatory protection (NIRP item), order (BIO items), free information flow (NIFIF items), and sharing and delegation of control (NISDC item). Hence, the construct was named *observed integrity* based on the characteristics of the items in the construct.

Using these items, confirmatory factor analysis was conducted. One factor was loaded with an eigenvalue of 4.463. NIAVS1 and NIAVS2 (.660 and .639), NIFIF2 (.647), and NISDC1 (.554) appeared as weak items. (Table 32.)

Table 32. Initial Factor Loading

Factor Matrix^a	
	Factor
	1
NIAVS1	.640
NIAVS2	.639
NIRP1	.723
NIO1	.846
NIO2	.820
NIFIF1	.716
NIFIF2	.647
NISDC1	.554

Extraction Method: Maximum Likelihood.

IRT indicated a different set of weak items in this new construct that included NIFIF1 along with the same weak items appearing in the confirmatory analysis result.

Regarding the items' characteristics and analysis results, dropping the NIAVS items (accepted value system) based on its resemblance with value congruence in common ground construct and congruence in internal resource integrity.

However, free information flow items (NIFIF1 and NIFIF2) characterizing an organization's openness did not have similar concepts throughout the model. (Table 33. & Table 34.)

Table 33. Initial IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$																	
Item	Label	a	s.e.	b1	s.e.	b2	s.e.	b3	s.e.	b4	s.e.	b5	s.e.	b6	s.e.	b7	s.e.
1	<i>NIAVS1</i>	⁷ 1.44	0.22	-3.62	0.62	-3.10	0.48	-2.02	0.29	-1.07	0.18	0.07	0.15	2.12	0.33		
2	<i>NIAVS2</i>	¹⁴ 1.50	0.23	-4.22	0.83	-3.27	0.52	-2.52	0.37	-1.94	0.28	-0.63	0.15	0.90	0.19		
3	NIRP1	²² 2.35	0.32	-3.53	0.64	-2.91	0.43	-2.14	0.26	-1.81	0.21	-1.08	0.14	-0.14	0.11	1.05	0.16
4	NIO1	³⁰ 3.62	0.52	-3.16	0.59	-2.22	0.27	-1.75	0.18	-1.08	0.12	-0.38	0.10	0.26	0.11	1.35	0.16
5	NIO2	³⁸ 3.93	0.58	-3.20	0.61	-2.23	0.27	-1.68	0.17	-1.14	0.12	-0.59	0.10	0.13	0.10	1.33	0.16
6	<i>NIFIF1</i>	⁴⁶ 1.96	0.26	-3.76	0.70	-2.17	0.27	-1.59	0.20	-0.81	0.14	-0.04	0.12	0.71	0.15	2.13	0.28
7	<i>NIFIF2</i>	⁵⁴ 1.41	0.21	-4.47	0.91	-3.43	0.56	-3.16	0.49	-1.61	0.24	-0.30	0.15	0.61	0.17	2.06	0.32
8	<i>NISDC1</i>	⁶¹ 1.28	0.21	-2.19	0.34	-1.13	0.20	-0.26	0.15	0.76	0.20	1.93	0.33	3.48	0.62		

Therefore, NIFIF1 was kept for further dimension testing (factor loading = .660, $a=1.71$). Sharing and delegating the control item was determined to be improper for this construct because it is single itemed construct. Therefore, the item was dropped from the list.

Table 34. Initial IRT Fit Matrices

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	3690.92
<i>Akaike Information Criterion (AIC):</i>	3812.92
<i>Bayesian Information Criterion (BIC):</i>	4002.01

Using the combined information from factor analysis and IRT, four measurement items were chosen for the following confirmatory analysis and goodness-of-fit test. From the confirmatory analysis, the single factor was loaded with an eigenvalue of 2.776. *AIC*

(3812.92 $\rightarrow$ 1902.68) and *BIC* (4002.01 $\rightarrow$ 2001.87) fit indices from IRT also improved.

(Table 35., Table 36., & Table 37.)

Table 35. Factor Loading Comparison

Factor Matrix ^a	
	Factor
	1
NIRP1	.712
NIO1	.896
NIO2	.838
NIFIF1	.660

Extraction Method: Maximum Likelihood.

Table 36. IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$

Item	Label	a	s.e.	b1	s.e.	b2	s.e.	b3	s.e.	b4	s.e.	b5	s.e.	b6	s.e.	b7	s.e.
1	NIRP1	8 $\frac{2.2}{4}$	0.30	-3.56	0.66	-2.96	0.46	-2.17	0.29	-1.85	0.25	-1.09	0.17	-0.13	0.14	1.07	0.16
2	NIO1	1 $\frac{4.4}{65}$	1.00	-3.10	0.58	-2.16	0.31	-1.69	0.22	-1.05	0.15	-0.37	0.12	0.26	0.11	1.30	0.14
3	NIO2	2 $\frac{4.4}{41}$	0.98	-3.12	0.57	-2.19	0.26	-1.69	0.17	-1.14	0.13	-0.56	0.11	0.13	0.12	1.30	0.17
4	<i>NIFIF1</i>	3 $\frac{1.7}{21}$	0.24	-3.98	0.75	-2.34	0.31	-1.71	0.23	-0.85	0.16	-0.04	0.14	0.75	0.17	2.27	0.32

Table 37. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	1838.68
<i>Akaike Information Criterion (AIC):</i>	1902.68
<i>Bayesian Information Criterion (BIC):</i>	2001.87

Normative Dimension. Through the previous process, the 22 items listed below were selected and studied to determine how well they fit together for the first dimension, Normative, in the dimensional fit test sections.

Table 38. Chosen Items for the Dimension Normative

Dimension	Construct	Items
Normative	Common Ground	NCVC1, NCVC2, NCS2, NCL1, NCL2, NCR2
	Expertise & Objectivity	NEOK1, NEOK2, NEOTC1, NEOTC2, NEOTC3, NEOP2
	Expected Integrity	NIC1, NIC2, NICON1, NIRC1, NIRC2
	Observed Integrity	NIRP1, NIO1, NIO2, NIFIF1

- Highlighted in red: Kept for model comparison purposes

Cognitive Belief – Personal/Subjective. This construct is part of the personal/subjective dimension dealing with an organization's personalized and subjective evaluations. Unlike the normative dimension, this dimension is mostly about individualized and personalized, therefore subjective and emotion-bound, responses to an organization with which respondents think they have a relationship. The dimension's first construct is (cognitive) belief that includes consistency (PCC item), credibility (PCCR items), competence in general (PCCG items), predictability (PCP item), and satisfaction with previous outcome (PCSPO item). A confirmatory analysis of the items

was performed. The single factor was loaded with an eigenvalue of 4.309. Of course, weak loadings were observed: PCP1 (.593) and PCSPO1 (.640). (Table 39.)

Table 39. Initial Factor Loading

Factor Matrix ^a	
	Factor
	1
PCC1	.782
PCCR1	.841
PCCR2	.812
PCCG1	.732
PCCG2	.765
PCP1	.593
PCSPO1	.640

Extraction Method: Maximum Likelihood.

The IRT results also showed that PCP1 ($a=1.52$, $s.e.=.24$) and PCSPO1 ($a=1.60$, $s.e.=.25$) items were weak with 3137.14 (*AIC*) and 3292.13 (*BIC*), respectively. (Table 40. & Table 41.)

Table 40. Initial IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$																		
Item	Label		a	$s.e.$	b_1	$s.e.$	b_2	$s.e.$	b_3	$s.e.$	b_4	$s.e.$	b_5	$s.e.$	b_6	$s.e.$	b_7	$s.e.$
1	PCC1	⁷	2.46	0.34	-2.80	0.38	-2.01	0.22	-1.00	0.13	-0.10	0.12	0.68	0.15	2.05	0.27		
2	PCCR1	¹⁴	3.22	0.50	-2.55	0.31	-2.02	0.21	-1.22	0.13	-0.64	0.11	0.32	0.12	1.66	0.21		
3	PCCR2	²¹	2.76	0.38	-3.03	0.47	-2.04	0.22	-1.19	0.14	-0.41	0.11	0.60	0.14	1.71	0.22		
4	PCCG1	²⁹	2.40	0.36	-3.22	0.54	-2.86	0.40	-2.02	0.23	-1.63	0.18	-0.90	0.13	0.19	1.55	0.22	
5	PCCG2	³⁶	2.71	0.40	-3.05	0.48	-2.20	0.25	-1.84	0.20	-0.87	0.12	0.24	0.12	1.50	0.20		
6	PCP1	⁴³	1.52	0.24	-3.55	0.61	-2.58	0.37	-1.97	0.27	-1.15	0.18	0.19	0.15	1.75	0.29		
7	PCSPO1	⁵⁰	1.60	0.25	-3.48	0.59	-2.74	0.40	-2.03	0.27	-1.11	0.17	-0.01	0.14	0.97	0.21		

Table 41. Initial IRT Fit Matrices

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	3037.14
<i>Akaike Information Criterion (AIC):</i>	3137.14
<i>Bayesian Information Criterion (BIC):</i>	3292.13

After dropping PCP and PCSPO items, another set of confirmatory and IRT tests were performed. With an eigenvalue of 3.474, the factor matrix was as follows. Although the PCCG items' factor-analysis results still indicated weak factor loadings (PCCG1=.689 and PCCG2=.697), the IRT showed some improvement in overall goodness-of-fit indices. (Table 42) In general, the PCCG items represented competence, explaining consistently outstanding or not-typical job performance. As an element of relationship judgment, keeping one of the items in favor of a better loading value appeared to be a better choice.

Table 42. Factor Loading Comparison

Factor Matrix^a	
	Factor
	1
PCC1	.814
PCCR1	.880
PCCR2	.834
PCCG1	.689
PCCG2	.697

Extraction Method: Maximum Likelihood.

In the IRT results, *AIC* and *BIC* improved from 3137.14 and 3292.13 to 2196.85 and 2308.44, respectively. Based on these results, the PCCG2 item was chosen to remain until another fit test was conducted at a dimension level. (Table 43. & Table 44.)

Table 43. IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$																		
Item	Label		a	s.e.	b_1	s.e.	b_2	s.e.	b_3	s.e.	b_4	s.e.	b_5	s.e.	b_6	s.e.	b_7	s.e.
1	PCC1	⁷	2.79	0.38	-2.67	0.38	-1.95	0.25	-0.97	0.16	-0.09	0.13	0.66	0.13	1.98	0.22		
2	PCCR1	¹⁴	4.26	0.91	-2.39	0.33	-1.92	0.24	-1.15	0.17	-0.61	0.14	0.29	0.11	1.57	0.15		
3	PCCR2	²¹	3.11	0.45	-2.91	0.46	-1.97	0.24	-1.15	0.17	-0.41	0.13	0.56	0.12	1.66	0.18		
4	PCCG1	²⁹	2.04	0.30	-3.45	0.62	-3.04	0.46	-2.15	0.26	-1.72	0.21	-0.94	0.15	0.20	0.14	1.63	0.23
5	PCCG2	³⁶	2.17	0.31	-3.34	0.58	-2.38	0.30	-1.99	0.24	-0.94	0.15	0.26	0.14	1.60	0.22		

Table 44. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	2124.85
<i>Akaike Information Criterion (AIC):</i>	2196.85
<i>Bayesian Information Criterion (BIC):</i>	2308.44

Affective Emotion – Personal/Subjective. This construct is composed of benevolence (PAB item), empathy (PAEE items), and friendliness (PAF item). In the confirmatory factor analysis (eigenvalue=2.635), the PAF item appeared weak at a loading value of .513. (Table 45.)

Table 45. Initial Factor Loading

Factor Matrix ^a	
	Factor
	1
PAB1	.935
PAEE1	.931
PAEE2	.849
PAF1	.513

Extraction Method: Maximum Likelihood.

The IRT results also confirmed the PAF item's inaptitude in the construct ($a=1.16$, $s.e.=.22$). (Table 46.)

Table 46. Initial IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$

Item	Label	a	$s.e.$	b_1	$s.e.$	b_2	$s.e.$	b_3	$s.e.$	b_4	$s.e.$	b_5	$s.e.$	b_6	$s.e.$
1	PAB1	⁷ 6.80	1.45	-2.24	0.29	-1.31	0.20	-0.93	0.17	-0.33	0.13	0.17	0.11	1.07	0.11
2	PAEE1	¹⁴ 4.92	0.94	-1.91	0.28	-1.36	0.23	-0.87	0.18	-0.28	0.14	0.30	0.11	1.13	0.11
3	PAEE2	²¹ 3.32	0.54	-2.15	0.32	-1.43	0.24	-0.73	0.18	-0.03	0.13	0.62	0.11	1.58	0.16
4	PAF1	²⁸ 1.16	0.22	-5.08	1.23	-3.56	0.71	-2.22	0.45	-1.42	0.32	0.05	0.17	1.88	0.32

Table 47. Initial IRT Fit Matrices

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	1800.63
<i>Akaike Information Criterion (AIC):</i>	1856.63
<i>Bayesian Information Criterion (BIC):</i>	1943.42

Using the composed information from the confirmatory analysis and the IRT, the PAB and PAEE items were chosen for further tests. The factor loading score and the goodness-of fit-indices improved. (Table 48. & Table 49.)

Table 48. Factor Loading Comparison

Factor Matrix^a	
	Factor
	1
PAB1	.933
PAEE1	.935
PAEE2	.845

Extraction Method: Maximum Likelihood.

Table 49. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of Fit-Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	1340.37
<i>Akaike Information Criterion (AIC):</i>	1382.37
<i>Bayesian Information Criterion (BIC):</i>	1447.47

Trustworthiness - Personal/Subjective. This construct consists of the following categories: dependability (PTD items), confidence in organization (PTCO items), and forbearance of opportunism (PTFO items). Confirmatory analysis was performed using

the nine items. Except for PTD1 (.578), the items were loaded with acceptable factor-loading values with an eigenvalue of 5.877. (Table 50.)

Table 50. Initial Factor Loadings

Factor Matrix ^a	
	Factor
	1
PTD1	.578
PTD3	.763
PTCO1	.892
PTCO2	.850
PTCO3	.722
PTCO4	.806
PTFO1	.773
PTFO2	.753
PTFO3	.858

Extraction Method: Maximum Likelihood.

The IRT results also indicated that PTD1 was a weak item in the construct with goodness-of-fit indices of 4089.10 (*AIC*) and 4281.30 (*BIC*), respectively. (Table 51 and Table 52)

Table 51. IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$

Item	Label	<i>a</i>	s.e.	<i>b</i> ₁	s.e.	<i>b</i> ₂	s.e.	<i>b</i> ₃	s.e.	<i>b</i> ₄	s.e.	<i>b</i> ₅	s.e.	<i>b</i> ₆	s.e.
1	PTD1	⁷ 1.44	0.21	-3.33	0.53	-2.46	0.35	-1.90	0.27	-1.24	0.20	0.26	0.15	1.77	0.28
2	PTD3	¹⁴ 2.35	0.29	-2.14	0.24	-1.41	0.16	-0.83	0.13	0.07	0.12	0.75	0.14	1.88	0.24
3	PTCO1	²¹ 4.30	0.58	-2.07	0.20	-1.40	0.14	-1.08	0.11	-0.38	0.10	0.42	0.11	1.18	0.15
4	PTCO2	²⁸ 3.42	0.44	-2.39	0.26	-1.67	0.17	-1.31	0.14	-0.55	0.10	0.26	0.11	1.12	0.15
5	PTCO3	³⁴ 2.14	0.28	-2.59	0.33	-2.08	0.24	-1.15	0.15	-0.22	0.12	1.39	0.20		
6	PTCO4	⁴¹ 3.03	0.37	-2.37	0.26	-1.89	0.19	-1.25	0.14	-0.75	0.11	0.06	0.11	1.13	0.16
7	PTFO1	⁴⁸ 2.51	0.32	-1.70	0.19	-1.09	0.14	-0.61	0.11	0.12	0.11	0.68	0.14	1.66	0.21
8	PTFO2	⁵⁵ 2.29	0.29	-1.83	0.21	-1.20	0.15	-0.71	0.12	0.08	0.12	0.83	0.15	1.60	0.21
9	PTFO3	⁶² 3.55	0.46	-2.15	0.22	-1.56	0.15	-1.02	0.12	-0.39	0.10	0.60	0.12	1.40	0.17

Table 52. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of Fit-Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	3965.10
<i>Akaike Information Criterion (AIC):</i>	4089.10
<i>Bayesian Information Criterion (BIC):</i>	4281.30

After eliminating the PTD1 item from the pool, the confirmatory step was performed, and the results showed stable values for the construct. (Table 53.)

Table 53. Factor Loading Comparison

Factor Matrix^a	
	Factor
	1
PTD3	.752
PTCO1	.899
PTCO2	.855
PTCO3	.723
PTCO4	.812
PTFO1	.771
PTFO2	.753
PTFO3	.847

Extraction Method: Maximum Likelihood.

The IRT results also improved as the following tables demonstrate. The *AIC* and *BIC* indices both improved from 4089.10 and 4281.30 to 3626.20 and 3796.69, respectively. (Table 54. & Table 55.)

Table 54. IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$																
Item	Label		a	s.e.	b_1	s.e.	b_2	s.e.	b_3	s.e.	b_4	s.e.	b_5	s.e.	b_6	s.e.
1	PTD3	⁷	2.26	0.28	-2.17	0.25	-1.43	0.17	-0.83	0.13	0.08	0.12	0.77	0.16	1.90	0.26
2	PTCO1	¹⁴	4.49	0.62	-2.07	0.20	-1.39	0.13	-1.07	0.11	-0.37	0.10	0.42	0.12	1.17	0.16
3	PTCO2	²¹	3.52	0.47	-2.39	0.26	-1.66	0.16	-1.31	0.13	-0.55	0.10	0.26	0.12	1.12	0.16
4	PTCO3	²⁷	2.14	0.29	-2.60	0.33	-2.09	0.24	-1.15	0.15	-0.21	0.12	1.40	0.21		
5	PTCO4	³⁴	3.10	0.39	-2.37	0.25	-1.88	0.19	-1.24	0.13	-0.74	0.11	0.07	0.11	1.13	0.17
6	PTFO1	⁴¹	2.51	0.33	-1.70	0.18	-1.09	0.13	-0.61	0.12	0.13	0.12	0.69	0.15	1.66	0.22
7	PTFO2	⁴⁸	2.29	0.30	-1.84	0.20	-1.21	0.15	-0.71	0.12	0.08	0.12	0.83	0.16	1.60	0.23
8	PTFO3	⁵⁵	3.38	0.45	-2.17	0.22	-1.58	0.15	-1.03	0.12	-0.39	0.10	0.61	0.13	1.42	0.19

Table 55. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of Fit-Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	3516.20
<i>Akaike Information Criterion (AIC):</i>	3626.20
<i>Bayesian Information Criterion (BIC):</i>	3796.69

With *AIC* and *BIC* fit values still inflated compared to other constructs in the previous dimension, one more step was required to determine whether or not this trustworthiness construct was well filtered. In the previous factor analysis, *AIC* and *BIC* tended to deflate as factor-loading values improved, such as higher than .7. However, this construct did not show a similar trend. Therefore, *A parameter* needed to be reexamined to understand what caused the issue. As previously mentioned, smaller *A parameter* value items were losing their discriminating capability among people. Unlike PTD3, a stand-alone item, PTCO3 and PTFO2 showed smaller *A parameter* values in

their given categories. Regarding the ratio between *A parameter* and standardized error, PTFO3 was particularly smaller than PTFO1 in terms of discriminating capability in its category. Therefore, the items were dropped from the list, and the IRT test was re-administered. (Table 56.)

Table 56. A Parameter and Standard Error Ratio Comparison

Items	<i>A parameter</i>	S.E	Ratio
PTD3	2.26	0.28	8.071429
PTCO1	4.49	0.62	7.241935
PTCO2	3.52	0.47	7.489362
PTCO3	2.14	0.29	7.37931
PTCO4	3.1	0.39	7.948718
PTFO1	2.51	0.33	7.606061
PTFO2	2.29	0.3	7.633333
PTFO3	3.38	0.45	7.511111

The IRT results showed that PTFO1 still was weak; but after eliminating the problematic items, the goodness of fit improved from 3626.20 (*AIC*) and 3796.69 (*BIC*) to 2363.06 and 2471.55, respectively. Based on the test results, PTFO1 was retained for further testing as a member of the Personal/Subjective dimension. (Table 57. & Table 58.)

Table 57. IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$

Item	Label	<i>a</i>	s.e.	<i>b</i> ₁	s.e.	<i>b</i> ₂	s.e.	<i>b</i> ₃	s.e.	<i>b</i> ₄	s.e.	<i>b</i> ₅	s.e.	<i>b</i> ₆	s.e.
1	PTD3 ⁷	2.18	0.28	-2.17	0.31	-1.43	0.22	-0.85	0.18	0.08	0.15	0.77	0.16	1.95	0.24
2	PTCO1 ¹⁴	5.97	1.58	-1.97	0.21	-1.34	0.15	-1.03	0.15	-0.37	0.13	0.39	0.13	1.12	0.17
3	PTCO2 ²¹	4.54	0.66	-2.25	0.28	-1.57	0.19	-1.25	0.17	-0.54	0.14	0.25	0.12	1.06	0.14
4	PTCO4 ²⁸	2.77	0.43	-2.43	0.35	-1.94	0.28	-1.26	0.21	-0.74	0.17	0.06	0.14	1.16	0.15
5	PTFO1³⁵	1.99	0.29	-1.84	0.29	-1.18	0.22	-0.66	0.18	0.12	0.15	0.73	0.15	1.80	0.22

Table 58. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of Fit-Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	2293.06
<i>Akaike Information Criterion (AIC):</i>	2363.06
<i>Bayesian Information Criterion (BIC):</i>	2471.55

Intention – Personal/Subjective. This construct consists of the following categories: willingness to rely on (PIW item), relationship investment (PIRI items), influence acceptance (PIIA item), openness (PIO item), and control reduction (PICR item). Confirmatory analysis was performed using the six items.

Table 59. Initial Factor Loadings

Factor Matrix^a	
	Factor
	1
PIW1	.870
PIRI1	.779
PIRI2	.619
PIIA1	.690
PIO1	.742
PICR1	.724

Extraction Method: Maximum Likelihood.

However, the IRT demonstrated a different result. Based on parameter estimates, PIRI2 appeared as a weak item compared to the others in the matrix. Along with PIRI2, PIW1 also called for attention. The ratio between *A parameter* and S.E. was smallest in the matrix. Although the factor loading and the *A parameter* value were the biggest in

the matrix, this item required more testing to understand to what degree it contributed to the dimension. (Table 60 & Table 61)

Table 60. Initial IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$																
Item	Label		a	s.e.	b_1	s.e.	b_2	s.e.	b_3	s.e.	b_4	s.e.	b_5	s.e.	b_6	s.e.
1	PIW1	⁷	3.57	0.55	-2.24	0.26	-1.61	0.18	-0.89	0.12	-0.25	0.10	0.47	0.11	1.70	0.19
2	PIR11	¹⁴	2.45	0.33	-2.04	0.25	-1.76	0.21	-0.73	0.13	0.04	0.11	1.03	0.16	2.03	0.25
3	PIR12	²¹	1.62	0.23	-2.95	0.46	-2.01	0.29	-1.28	0.21	-0.26	0.14	0.83	0.16	2.12	0.29
4	PIIA1	²⁸	2.00	0.30	-2.85	0.42	-2.27	0.31	-1.95	0.26	-0.99	0.17	0.14	0.12	1.58	0.21
5	PIO1	³⁵	2.18	0.30	-3.04	0.48	-2.03	0.27	-1.33	0.19	-0.51	0.13	0.53	0.13	1.78	0.22
6	PICR1	⁴²	2.20	0.30	-2.24	0.28	-1.75	0.21	-0.89	0.14	-0.33	0.12	0.53	0.14	1.66	0.22

Table 61. Initial IRT Fit Matrices

Likelihood-based Values and Goodness-of Fit-Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	2817.18
Akaike Information Criterion (AIC):	2901.18
Bayesian Information Criterion (BIC):	3031.38

After dropping PIRI2, the confirmatory analysis was conducted to check for any improvement. Factor was loaded with an eigenvalue of 3.317. PIIA1, as previously indicated, remained weak. However, at this point, it was uncertain whether it performed less contributing job when PIIA1 was in the dimension. (Table62.)

Table 62. Factor Loading Comparison

Factor Matrix^a	
	Factor
	1
PIW1	.885
PIRI1	.772
PIIA1	.661
PIO1	.743
PICR1	.734

Extraction Method: Maximum Likelihood.

Therefore, tentatively, the item was kept in the construct. However, after eliminating PIRI2, goodness-of-fit indices improved from 2901.18 (*AIC*) and 3031.38 (*BIC*) to 2402.48 (*AIC*) and 2510.98 (*BIC*), respectively. (Table 63.)

Table 63. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of Fit-Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	2332.48
<i>Akaike Information Criterion (AIC):</i>	2402.48
<i>Bayesian Information Criterion (BIC):</i>	2510.98

Personal/Subjective Dimension. Through the previous process, the 21 items identified below were selected for the first dimension, Personal/Subjective, and studied to determine how well they fit together for the dimension in dimensional fit test sections.

Table 64. Chosen Items for the Dimension Subjective/Personal

Dimension	Construct	Items
Personal /Subjective	(Cognitive) Belief	PCC1, PCCR1, PCCR2, PCCG1, PCCG2
	(Affective) Emotion	PAB1, PAEE1, PAEE2
	Trustworthiness	PTD3, PTCO1, PTCO2, PTCO4, PTFO1
	Intention	PIW1 , PIRI1, PIIA1 , PIO1, PICR1

- Highlighted in red: Kept for model comparison purposes

Communication – Consequence. This is a single-item construct. Therefore, testing this construct using confirmatory analysis and an item-response test was impossible. However, this item could be tested as part of a dimension, consequences. For this purpose, analysis of the communication item was not available at this item-level test session.

Persuasion – Consequences. This construct contains the following items: confidence on accurate and valid information (CPCAI item), expert endorsement (CPEE items), and reduction-of-message elaboration (CPRME items). Confirmatory analysis

was conducted using the five items. The factor was loaded with an eigenvalue of 3.386. As the table below shows, CPRME2 appeared as a weak item in the pool. (Table 65.)

Table 65. Initial Factor Loadings

Factor Matrix ^a	
	Factor
	1
CPCAI1	.830
CPEE1	.911
CPEE2	.705
CPRME1	.796
CPRME2	.602

Extraction Method: Maximum Likelihood.

In terms of *A parameter*, the IRT results also showed CPRME2 as weak with goodness-of-fit indices of 2202.67 (*AIC*) and 2311.16 (*BIC*), respectively. (Table 66 & Table67)

Table 66. Initial IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$

Item Label	<i>a</i>	s.e.	<i>b</i> ₁	s.e.	<i>b</i> ₂	s.e.	<i>b</i> ₃	s.e.	<i>b</i> ₄	s.e.	<i>b</i> ₅	s.e.	<i>b</i> ₆	s.e.
1 CPCAI1 ⁷	2.99	0.43	-2.51	0.31	-2.22	0.26	-1.41	0.17	-0.65	0.13	0.45	0.12	1.63	0.20
2 CPEE1 ¹⁴	3.90	0.64	-2.59	0.33	-2.13	0.24	-1.65	0.19	-0.83	0.13	0.19	0.11	1.28	0.15
3 CPEE2 ²¹	2.31	0.33	-2.53	0.32	-1.95	0.23	-1.72	0.20	-1.03	0.15	0.15	0.13	1.46	0.20
4 CPRME1 ²⁸	2.81	0.43	-3.15	0.50	-2.47	0.30	-1.65	0.18	-0.74	0.12	0.22	0.12	1.34	0.18
5 CPRME2³⁵	1.67	0.24	-2.80	0.42	-2.32	0.33	-1.41	0.22	-0.39	0.15	0.83	0.16	2.19	0.29

Table 67. Initial IRT Fit Matrices

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	2132.67
<i>Akaike Information Criterion (AIC):</i>	2202.67
<i>Bayesian Information Criterion (BIC):</i>	2311.16

After eliminating the CPRME2, the confirmatory analysis and IRT tests were conducted. Factor loading with an eigenvalue of 2.976 and a goodness of fit of 1723.55 (*AIC*) and 1810.35 (*BIC*) resulted. However, CPEE2 still appeared as a weak item in factor-load and IRT values. Therefore, it was tested for dimensional fit. (Table68, Table 69., & Table70.)

Table 68. Factor Loading Comparison

Factor Matrix^a	
	Factor
	1
CPCAI1	.830
CPEE1	.920
CPEE2	.703
CPRME1	.786

Extraction Method: Maximum Likelihood.

Table 69. IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$															
Item	Label	<i>a</i>	<i>s.e.</i>	<i>b</i> ₁	<i>s.e.</i>	<i>b</i> ₂	<i>s.e.</i>	<i>b</i> ₃	<i>s.e.</i>	<i>b</i> ₄	<i>s.e.</i>	<i>b</i> ₅	<i>s.e.</i>	<i>b</i> ₆	<i>s.e.</i>
1	CPCAI1	⁷ 2.98	0.45	-2.52	0.36	-2.24	0.31	-1.42	0.21	-0.64	0.15	0.45	0.12	1.63	0.17
2	CPEE1	¹⁴ 3.91	0.70	-2.60	0.37	-2.15	0.29	-1.67	0.23	-0.82	0.16	0.19	0.11	1.27	0.13
3	CPEE2	²¹ 2.35	0.37	-2.52	0.38	-1.94	0.28	-1.70	0.26	-1.02	0.19	0.15	0.12	1.45	0.17
4	CPRME1	²⁸ 2.75	0.46	-3.17	0.56	-2.49	0.37	-1.66	0.24	-0.74	0.16	0.23	0.11	1.34	0.15

Table 70. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	1667.55
<i>Akaike Information Criterion (AIC):</i>	<i>1723.55</i>
<i>Bayesian Information Criterion (BIC):</i>	<i>1810.35</i>

Relationship – Consequence. This construct consists of dependence (CRD items), satisfaction (CRS items), loyalty (CRL items), and long-term orientation (CRLTO items). Confirmatory analysis was performed. CRD2, CRD3, CRL1, and CRLTO3 appeared as weak items with noticeable cross loadings with two factor loadings with eigenvalue of 5.848 and 1.309, respectively. (Table 71.)

Table 71. Initial Factor Loadings

Factor Matrix^a		
	Factor	
	1	2
CRD1	.715	.271
CRD2	.690	.441
CRD3	.682	.478
CRS1	.721	.381
CRS2	.760	.352
CRL1	.589	.068
CRL2	.768	-.267
CRLTO1	.884	-.242
CRLTO2	.840	-.372
CRLTO3	.697	-.205

Extraction Method: Maximum Likelihood.

The IRT also showed the same weak items with less proper goodness-of-fit indices of *AIC* (4593.41) and *BIC* (4807.30 (*BIC*), respectively. (Table72 & Table73)

Table 72. Initial IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$																
Item	Label		a	s.e.	b_1	s.e.	b_2	s.e.	b_3	s.e.	b_4	s.e.	b_5	s.e.	b_6	s.e.
1	CRD1	⁶	2.11	0.29	-3.06	0.44	-1.67	0.20	-0.65	0.13	0.44	0.13	1.74	0.23		
2	CRD2	¹³	1.81	0.26	-3.84	0.73	-3.11	0.46	-1.97	0.25	-0.80	0.15	0.38	0.14	1.72	0.24
3	CRD3	²⁰	1.79	0.26	-2.88	0.41	-2.58	0.35	-1.10	0.17	-0.21	0.13	0.66	0.15	2.31	0.32
4	CRS1	²⁷	2.08	0.29	-2.87	0.39	-2.18	0.26	-1.72	0.21	-0.86	0.14	0.32	0.13	1.51	0.20
5	CRS2	³⁴	2.49	0.34	-2.63	0.33	-2.17	0.25	-1.52	0.17	-0.69	0.12	0.18	0.12	1.16	0.16
6	CRL1	⁴¹	1.71	0.23	-3.70	0.64	-2.68	0.36	-1.89	0.24	-0.87	0.15	0.25	0.14	1.78	0.25
7	CRL2	⁴⁸	2.41	0.34	-2.52	0.31	-2.08	0.24	-1.60	0.18	-1.02	0.13	-0.26	0.11	0.61	0.14
8	CRLTO1	⁵⁵	3.29	0.54	-2.14	0.23	-1.79	0.18	-1.53	0.16	-0.95	0.12	-0.18	0.10	0.62	0.12
9	CRLTO2	⁶²	2.53	0.39	-2.27	0.26	-1.83	0.20	-1.33	0.15	-0.62	0.11	-0.05	0.11	0.61	0.13
10	CRLTO3	⁶⁹	1.70	0.25	-1.63	0.22	-1.16	0.17	-0.84	0.15	0.05	0.13	0.59	0.15	1.41	0.22

Table 73. Initial IRT Fit Matrices

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	4455.41
Akaike Information Criterion (AIC):	4593.41
Bayesian Information Criterion (BIC):	4807.30

After eliminating CRD2, CRD3, CRL1, and CRLTO3, other tests were performed. Although one factor was loaded with an eigenvalue of 3.988, these weak items were still observable: CRD1, CRS1, and CRS2. (Table 74.)

Table 74. Factor Loading Comparison

Factor Matrix ^a	
	Factor
	1
CRD1	.652
CRS1	.632
CRS2	.662
CRL2	.811
CRLTO1	.914
CRLTO2	.876

Extraction Method: Maximum Likelihood.

However, the IRT depicted different analysis results on CRS2. A *parameter*, in particular, mainly depicted CRD1 and CRS1, but not CRS2. (Table75 & Table76)

Table 75. IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$

Item	Label	<i>a</i>	s.e.	<i>b</i> ₁	s.e.	<i>b</i> ₂	s.e.	<i>b</i> ₃	s.e.	<i>b</i> ₄	s.e.	<i>b</i> ₅	s.e.	<i>b</i> ₆	s.e.
1	CRD1	⁶ 1.76	0.25	-3.32	0.53	-1.80	0.24	-0.70	0.15	0.44	0.14	1.88	0.26		
2	CRS1	¹³ 1.75	0.25	-3.05	0.46	-2.32	0.31	-1.84	0.24	-0.93	0.16	0.33	0.14	1.62	0.23
3	CRS2	²⁰ 2.05	0.28	-2.80	0.39	-2.29	0.29	-1.60	0.20	-0.75	0.14	0.15	0.12	1.21	0.18
4	CRL2	²⁷ 3.06	0.42	-2.31	0.27	-1.92	0.21	-1.47	0.16	-0.94	0.13	-0.26	0.10	0.53	0.12
5	CRLTO1	³⁴ 4.20	0.69	-2.02	0.22	-1.70	0.18	-1.46	0.15	-0.90	0.12	-0.17	0.10	0.55	0.11
6	CRLTO2	⁴¹ 3.48	0.51	-2.07	0.23	-1.67	0.18	-1.22	0.14	-0.58	0.11	-0.06	0.10	0.54	0.12

Table 76. IRT Fit Matrices Comparison

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	2630.91
<i>Akaike Information Criterion (AIC):</i>	2712.91
<i>Bayesian Information Criterion (BIC):</i>	2840.01

These results required choosing proper items. By examining the construct's design, satisfaction-related measurement items were a possible target to modify because the relationship dimension already had satisfaction with an organization as a predisposed condition. If people are not satisfied with an organization, formulating dependence, loyalty, and long-term perspective is difficult. Therefore, one of the satisfaction-related items, CRS1, was dropped instead of dropping all satisfaction-related items. (Table 77.)

Table 77. Factor Loading Comparison

Factor Matrix^a	
	Factor
	1
CRD1	.620
CRS2	.621
CRL2	.818
CRLTO1	.919
CRLTO2	.893

Extraction Method: Maximum Likelihood.

Table 78. IRT Results

Graded Model Item Parameter Estimates for Group 1, logit: $a(\theta - b)$																
Item	Label		a	s.e.	b_1	s.e.	b_2	s.e.	b_3	s.e.	b_4	s.e.	b_5	s.e.	b_6	s.e.
1	CRD1	⁶	1.57	0.23	-3.54	0.60	-1.92	0.27	-0.74	0.16	0.47	0.15	1.99	0.29		
2	CRS2	¹³	1.81	0.25	-2.99	0.44	-2.44	0.33	-1.70	0.23	-0.79	0.15	0.16	0.13	1.28	0.20
3	CRL2	²⁰	3.11	0.44	-2.31	0.27	-1.92	0.21	-1.46	0.16	-0.94	0.13	-0.26	0.11	0.53	0.12
4	CRLTO1	²⁷	4.61	0.78	-1.99	0.21	-1.69	0.18	-1.44	0.15	-0.89	0.12	-0.17	0.10	0.54	0.11
5	CRLTO2	³⁴	4.01	0.60	-2.02	0.22	-1.64	0.17	-1.19	0.14	-0.57	0.11	-0.06	0.10	0.53	0.11

Table 79. IRT Fit matrices Comparison

Likelihood-based Values and Goodness-of-Fit Statistics	
Statistics based on the loglikelihood	
-2loglikelihood:	2192.28
Akaike Information Criterion (AIC):	2260.28
Bayesian Information Criterion (BIC):	2365.67

Although the factor loading (eigenvalue = 3.459) and goodness-of-fit indices ($AIC=2260.28$ & $BIC=2365.67$) were still not satisfactory, the items were kept for further fit testing of the consequences dimension. (Table 79.)

Consequences Dimension. Through the previous process, the 22 items listed below were selected for the first dimension, Normative to determine how well they fit together for the Normative dimension in dimensional fit test sections. (Table 80.)

Table 80. Chosen Items for the Dimension Consequence

Dimension	Construct	Items
Consequences	Communication	CCIF1
	Persuasion	CPCAI1, CPEE1, CPEE2, CPRME1
	Relationship	CRD1, CRS2, CRL2, CRLTO1, CRLTO2

- Highlighted in red: Kept for model comparison purposes

Measurement Model Dimensions Tests and Competing Models

In the previous sections, confirmatory factor analysis at a construct level was performed to understand how well the chosen items in each dimension fit together. Although it is limited, the IRT also provided construct-level fit tests' results. Therefore, dimension fit tests are of particular interest for this section.

As a priory step before confirmatory factor analysis, however, discussing supposedly weak items at each construct level is important. Regarding the purpose of this study, *weak item* is a relative term and purposefully made decisions, which sometimes set the item selection procedures apart from general statistical guidelines. For instance, cross-loaded items in factor structure with $\geq .32$ generally become candidates for deletion to yield a stable or clearer factor structure (Costello & Osborne, 2005). However, this concept may not be an overall decision-making rule. Although the weak items still rely on numeric values of factor loadings and parameter values, deciding to retain or to delete such items is still relative decisions according to the relationships with other variables in a given factor matrix, a dimension particularly for this study. In other words, this study may be generous to some weak items, while being very conservative to some relatively strong items based on their relationships with other variables in a given factor matrix, a dimension of interest, regardless of statistical tools used to approach the desired conclusion.

Dimensions Tests

Simple construct-level tests are not to be pre-conditions of building a working dimension. A single solid construct possibly creates solidity and synergy among combined design elements; but disparity, fluctuation, and instability are also possible when these elements are combined. Therefore, apparently a better strategic solution to pursuing a dimension's stabilities and synergy is obtaining positive results. For this reason, this study performed primarily dimension tests with competing models. The main fit indices referred to throughout the analysis are TLI, CFI, RMSEA, and residual values of the items tested from AMOS 19 to determine a better model. The Tucker Lewis Index (TLI) is part of comparative indices along with CFI and RMSEA. TLI is known to be an underestimated fit of a model when the sample is small. Therefore, Bentler (1999) strongly proposed the Comparative Fit Index (CFI) as a compensative measure index of TLI's sampling variability and underestimating tendency. However, both indices tend to underestimate a model when the sample size is less than or equal to 250. RMSEA, unlike TLI and CFI, depends on error of approximation. Although relatively independent from sample data, RMSEA is sensitive to models with mis-specified factor loadings. Consequently, TLI, CFI and RMSEA all show relatively higher correlations based on models with which they are engaged, especially the maximum likelihood method. For analysis, the AMOS estimator is the maximum likelihood method with 200 times of bootstrapping. Based on the reasons and the indices limitation, all three indices are valuable and safe to check a certain trend of exaggerating or underestimating models for cross-reference purposes (Yoo, 2002).

Normative Dimension Tests - Competing Model(s) and Weak Items. Based on the previous item-level analysis, this dimension was modified by splitting the Integrity construct into two different conceptual entities: external- and internal-integrity. Moreover, the following weak items were chosen for further tests: NCR2 relating to reputation, NEOP2 relating to process based, NIH2 that is relating to internal integrity, and NIFIF1 relating to external integrity. Therefore, the first set of model fitting was conducted to compare results with and without such weak items presented in a dimension.

Table 81. Normative Dimension Test Items

Dimension	Construct	Items	Items for Further Testing
Normative	Common Ground	NCVC1, NCVC2, NCS2, NCL1, NCL2	NCR2
	Expertise and Objectivity	NEOK1, NEOK2, NEOTC1, NEOTC2, NEOTC3	NEOP2
	Internal Resource Integrity	NIC1, NIC2, NICON1, NIRC1, NIRC2	
	External Resource Integrity	NIO1, NIO2 , NIRP1	NIFIF1

Before testing the first dimension, a reliability analysis was performed using the targeted items in the dimension. Using 21 items obtained from the previous item-level analysis, the results showed .953 of Cronbach Alpha value (N=164) as revealed in the following Table (Table 81. & Table 82.)

Table 82. Reliability Statistics for the Dimension Normative

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.953	.955	20

For the model, including two other dimensions of interests, second-order models were built including designated constructs under each dimension for the first set of tests. Then, using weak items, a second set of models were built for comparison purposes.

The Normative dimension's model was re-specified (error variance connected) to improve the model fit using AMOS's modification index. In general, the measurement scale development process not only places caution on the connection, but also requires ample evidence, such as similar wording, and/or justification for doing so. When the model is unspecified with primary measurement items, the fit statistics are as discussed below.

As previously mentioned, TLI tends to underestimate or indicates a bad fit for an acceptable model when sample size is approximately 100. Regarding this estimation tendency, Hu and Bentler (1999) recommended a cutoff value of TLI closer to .95. Important to note is that Hu and Bentler, regarding the arguments around evaluating cutoff-value criteria, did not explicitly mention that TLI must exceed .95. To avoid the misspecification issue, CFI also has to be considered. Hu and Bentler also recommended that CFI be closer to .95. However, they noted that CFI works better with a smaller sample size when compared to TLI. Another widely used fit index is RMSEA, which is known to have its own distribution, which permits calculation of confidence interval,

helping researchers better understand how the fit index works under a joint relationship with a degree of freedom. Browne and Cudeck (1993) suggested that RMSEA values larger than .1 are indicative of poor-fitting models, while values of .05 to .08 are indicative of fair fit. Although less than .05 and .06 are recommended as close fit (Browne and Cudeck, 1993) and cutoff value (Hu and Bentler, 1999) respectively, it is safe to assume that the described model satisfies a fair-fit criterion regarding the given strains on sample size.

The unspecified model's fit indices are not favorable to any criterion even if strains on sample size are considered. Therefore, the modification index must be examined to determine what logical and theoretical connection may improve this model's fit without hurting theoretical purposes and making the model too data specific. Connecting error variance, however, is vastly dependent on a researcher's decision. Measurement items that have error-variance connections share a similar characteristic in terms of wording, particularly in this study.

For instance, NEOK1 asked for responses to "Faculty and other employees of the University have knowledge and expertise in their jobs." NEOK2, for comparison, asked for responses to "Faculty and other employees of the University are skilled and well-informed." These questions were semantically different to explore different aspects of capabilities needed for problem solving. However, they are closely related to each other (M.I.=70.9). When discussing problem-solving capabilities, it is, of course, natural to ask whether to own knowledge and skill as well as information and expertise handling given tasks. As this set of connected concepts has been divided, the items have a certain level

of correlated relationship. For another example, NIC1 and NICON1 received connection (M.I.=10.14). NIC1 asked for responses to “Most of the University faculty and other employees keep their promise.” NICON1 asked for responses to “The University provides what it is supposed to provide.” Both questions are based on truthfulness of what is expected. Therefore, a correlated relationship was expected. NIRC1 and NIRC2 also received connection with each other (M.I.=36.4). NIRC1 asked for responses to “I can rely on university faculty and other employees to meet their obligation.” NIRC2 asked for responses to “Faculty and other employees generally fulfill their duties.” Underlying these questions was the idea of meeting their obligation. Moreover, all the questions receiving connections were about faculty and other employees. Since the questions directed to evaluate a particular group of people having a certain level of correlated relationships was possible. Furthermore, this dimension in particular was mostly about evaluating an organization and its personnel. These types of convergent relationships are assumed not to degrade the dimension’s fitness. Based on the questions being close, yet not identical, three sets of questions received error-variance connection to improve the fit. Other modification index values are no longer regarded to avoid fit-driven re-specification.

The following table shows the results based on the unspecified for Normative dimension. (Table 83. & Table. 84) Through the comparison steps, this unspecified model was compared with two versions of specified models.

Table 83. Chi-Square MIN of Unspecified Dimension Model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	37	498.1812	134	.0000	3.7178
Saturated model	171	.0000	0		
Independence model	18	2531.0699	153	.0000	16.5429

Table 84. Fit Indices Comparison for the Unspecified Model

TLI	CFI	RMSEA		
		RMSEA	LO 90	HI 90
.8251	.8469	.1291	.1171	.1413

Two different dimension models were built for testing. The first model did not carry NCR2, NEOP2, and NIFIF1; and, as previously confirmed, the first comparison model had divided Integrity construct. Specifically, the first construct, Common Ground, has five items related to value congruence (NCVC 1 & NCVC 2), similarity (NCS 2), and likeability (NCL 1 & NCL 2). The second construct, Expertise and Objectivity, has five items related to knowledge (NEOK 1 & NEOK 2) and (technical) competence (NEOTC 1, NEOTC 2, and NEOTC 3). The third construct, Integrity, was originally a single construct with 15 items. However, based on the item-level test results, the construct was split into two constructs: Expected Integrity and Observed Integrity. This division was based on factor loadings, particularly on numbers of cross-loaded items and weak loading values. Referring to the values, exploratory analysis was performed, and the original construct was divided. Therefore, competing models for this particular dimension, as a

second set, became a comparison model with split integrity dimension versus a unified integrity dimension.

As a first step, a model without weak items and with split integrity dimension was tested using AMOS 19 with ML based on 200 times of bootstrapping option. (Figure 6.) As shown in the following diagram, the ratio of DF versus Chi-Square MIN is 2.5844 ($p=.000$). (Table 85.)

Table 85. CMIN of a Model with Split Construct Integrity

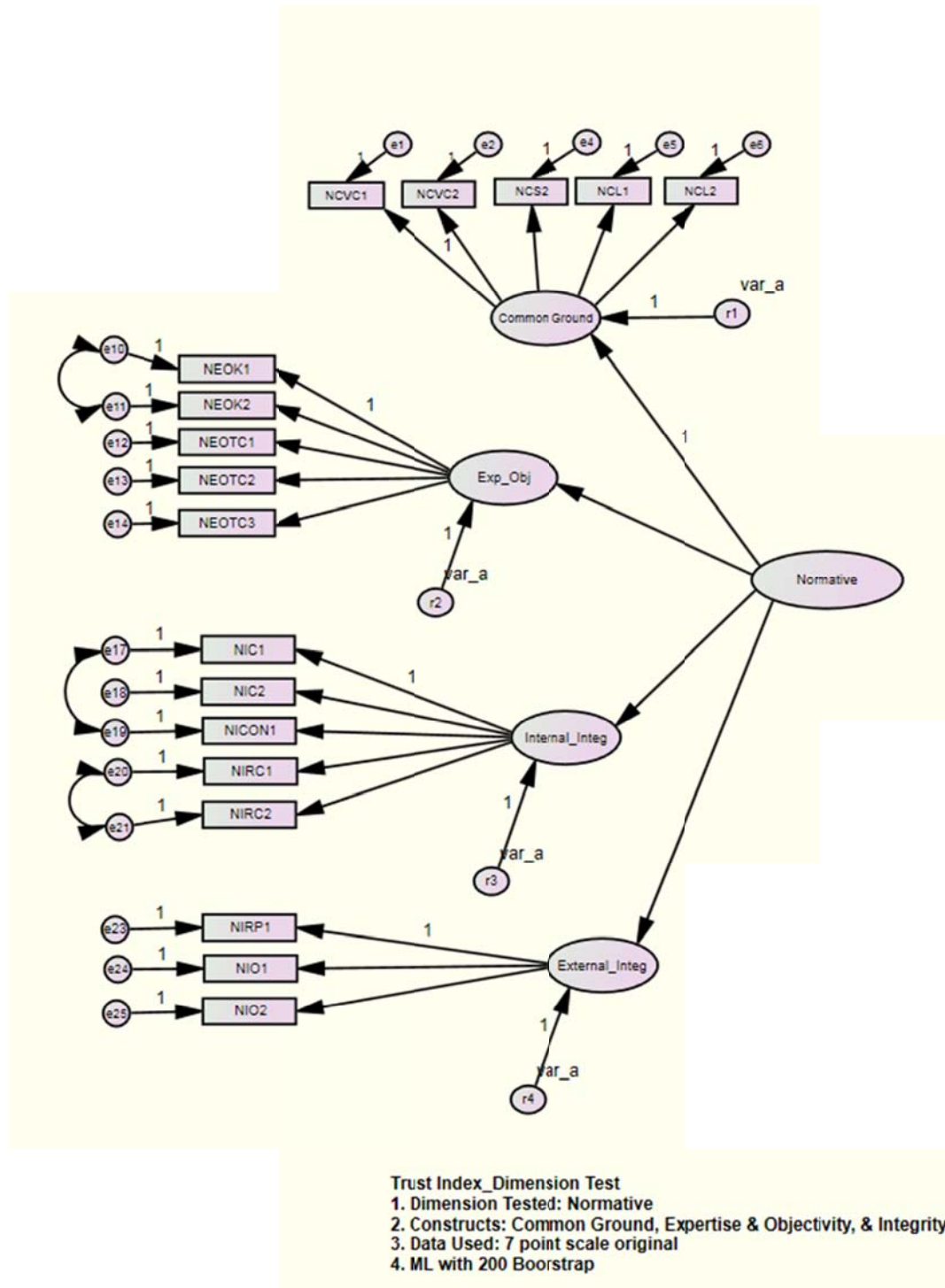
Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	41	335.9722	130	.0000	2.5844
Saturated model	171	.0000	0		
Independence model	18	2531.0699	153	.0000	16.5429

Baseline comparisons using TLI and CFI were .8981 and .9134, respectively. RMSEA value is .0986, which is close to .1. RMSEA value of .1 or greater is regarded as a poor fit. Since the value was close to a poor fit cut-off criterion, checking how competing models work in comparison with this first tested model was required. (Table 86.)

Table 86. Fit Indices Comparison with Split Construct Integrity

TLI	CFI	RMSEA		
		RMSEA	LO 90	HI 90
.8981	.9134	.0986	.0857	.1116

Figure 6. Specified Model for Normative Dimension with Split Construct Integrity



As the first competing model, the unified integrity construct incorporated model was tested. (Figure6) The ratio between Chi-Square MIN and DF was 4.1976 ($p=.000$). (Table 87. & Figure 7.)

Table 87. CMIN of the Competing Model with Single Integrity Construct

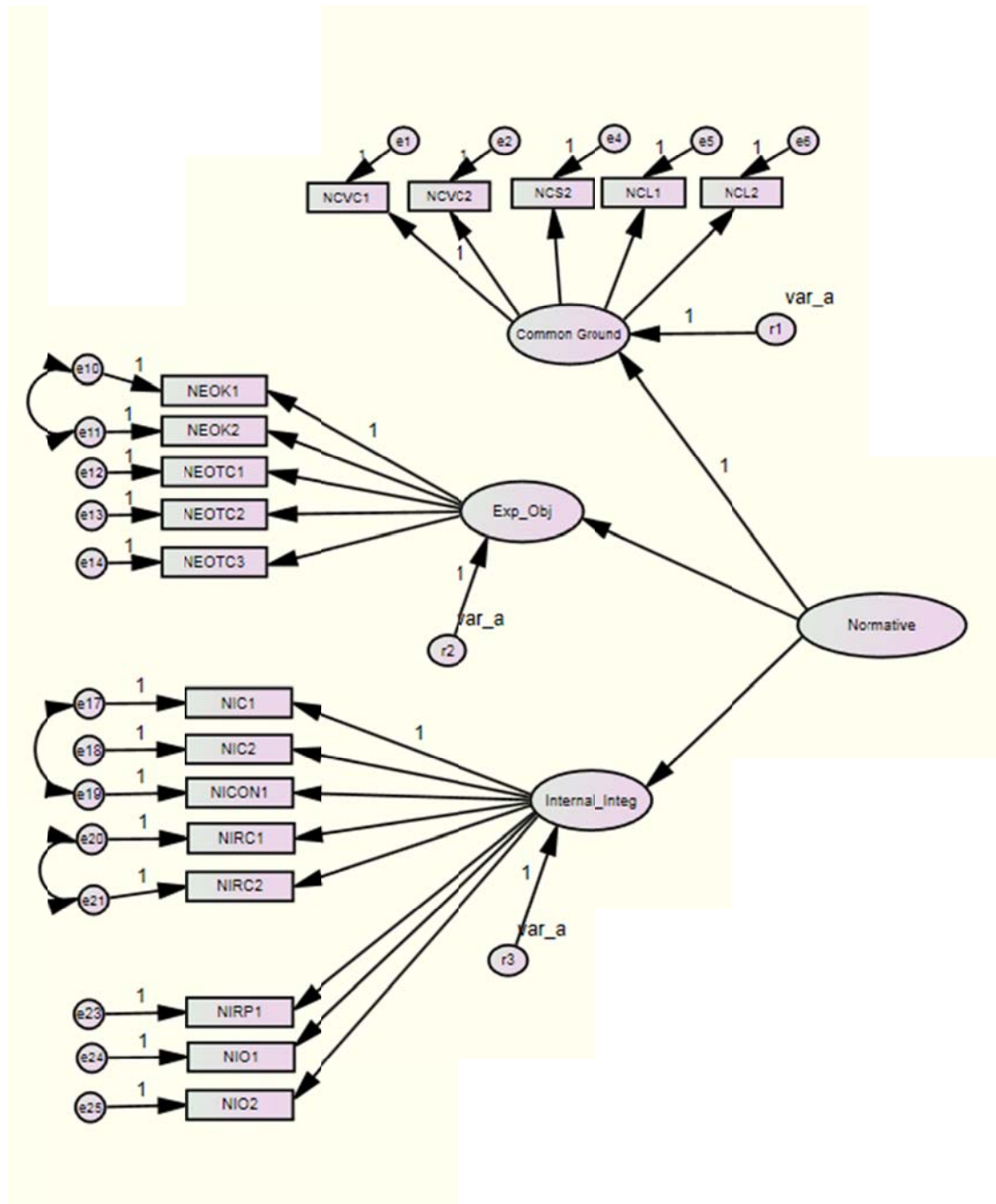
Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	40	549.8803	131	.0000	4.1976
Saturated model	171	.0000	0		
Independence model	18	2531.0699	153	.0000	16.5429

Both TLI and CFI decreased from .8981 and .9134 to .7943 and .8239, respectively. The error-variance connection stayed the same because the comparison model's modification index indicated loosely related, or simply statistically meaningful, items. Since building a connection without any rationale was unnecessary, the pristine conceptual connections remained. The RMSEA also exceeded .1. Therefore, Integrity had to be measured as two different constructs, expected and observed integrity as tested previously. (Table 88.)

Table 88. Fit Indices Comparison with Single Integrity Construct

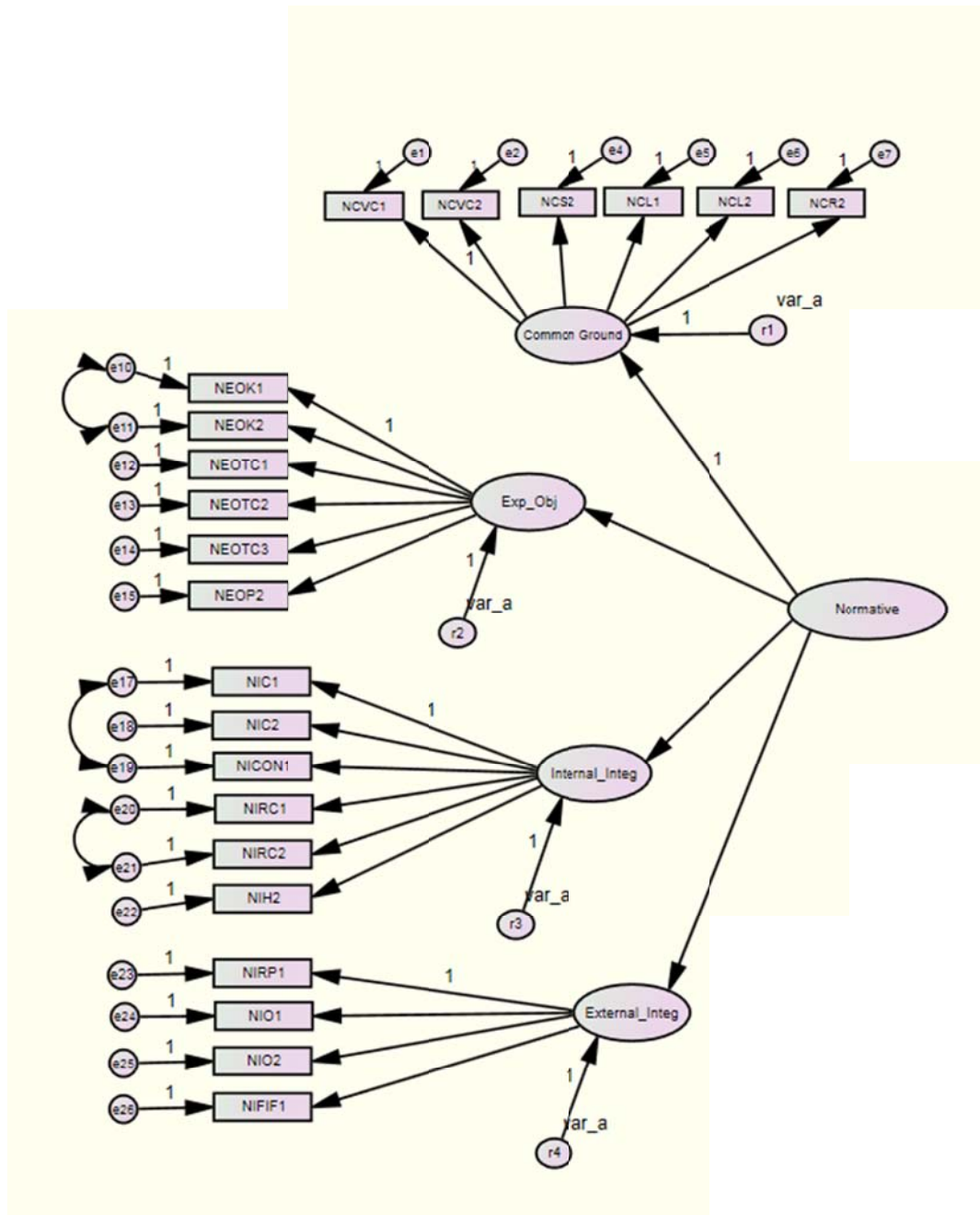
TLI	CFI	RMSEA		
		RMSEA	LO 90	HI 90
.7943	.8239	.1401	.1281	.1523

Figure 7. Competing Model with Single Integrity Construct



As the second set of comparison tests, weak loading items (NCR2, NEOP2, and NIFIF1) were joined with the dimension model. (Figure 8.)

Figure 8. Competing Model with Weak Item in Split Integrity Construct



When compared to the first competing model, the second model achieved almost no improvement in terms of fit indices. The ratio between Chi-Square MIN and DF was 3.045, slightly improved compared to the previous one, 4.197 (both at $p=.000$). (Table 89.) TLI and CFI were improved from .7943 and .8239 to .8464 and .8647, respectively ($p=.000$). RMSEA was escalated from .1120 to .1401, but was also estranged from fair-fit criteria. (Table 90.) Hence, the first suggested model was chosen as a comparatively better model for this dimension, Normative.

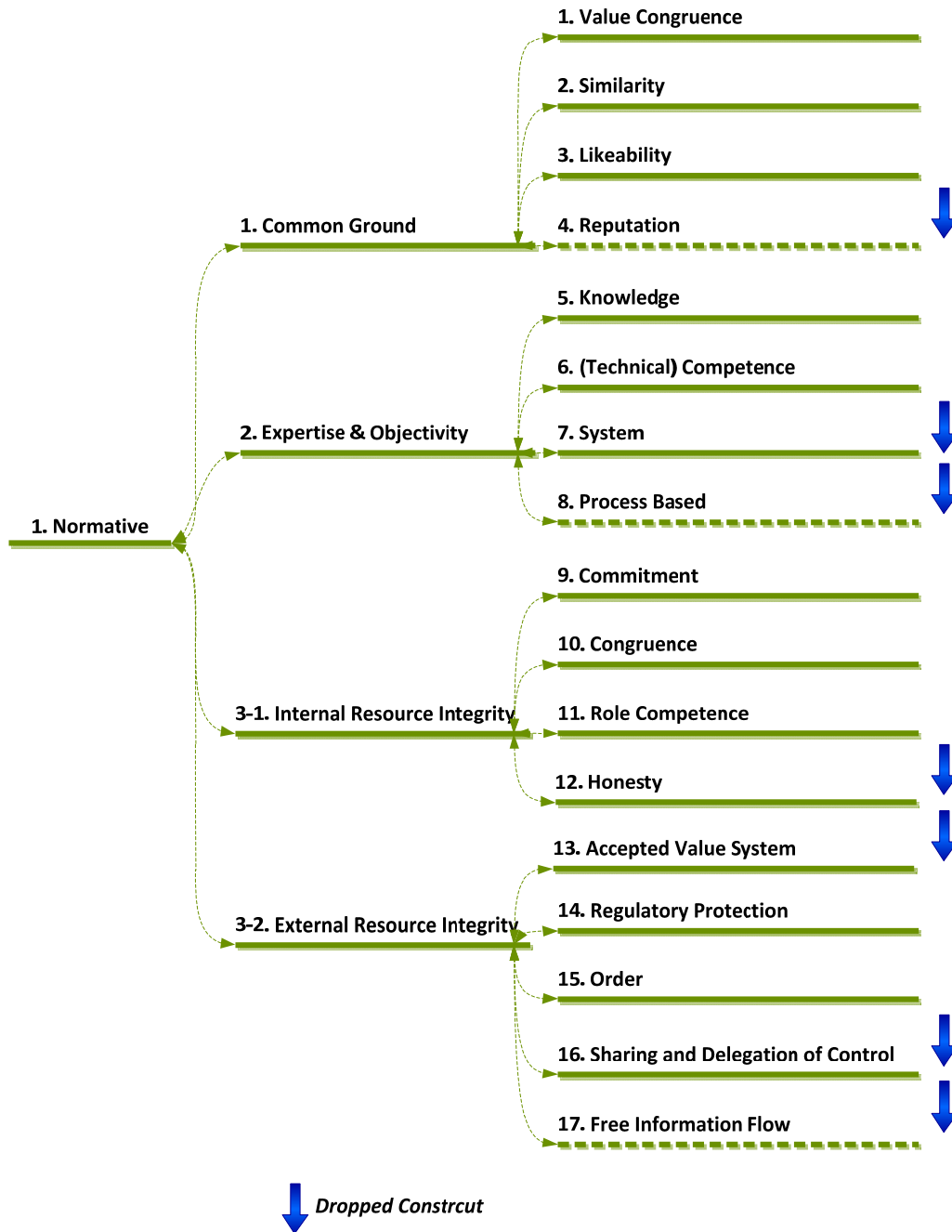
Table 89. CMIN of Competing Model with Weak Items in Split Integrity Dimension

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	46	563.3340	185	.0000	3.0450
Saturated model	231	.0000	0		
Independence model	21	3005.8969	210	.0000	14.3138

Table 90. Fit Indices Comparison with Weak Items in Split Integrity Dimension

TLI	CFI	RMSEA		
		RMSEA	LO 90	HI 90
.8464	.8647	.1120	.1015	.1226

Figure 9. Normative Dimension Finalized



Personal/Subjective Dimension – Competing Models and Weak Items. This dimension, after item-level analysis, had 21 measurement items. Among the selected items, five items required further testing as they participated in the dimension for a reasonable fit. These items were PCCG1 from the cognitive belief construct (competence in general related), PTCO3 from the trustworthiness construct (confidence in organization), and PTFO2 and PTFO3 from the trustworthiness (forbearance of opportunism related) construct. The comparison was conducted with and without the model's weak items. This fit test also established fit judgment using TLI, CFI, and RMSEA.

Table 91. Personal/Subjective Dimension Test Items

Dimension	Construct	Items	Items for Further Testing
Personal /Subjective	(Cognitive) Belief	PCC1, PCCR1, PCCR2, PCCG2	
	(Affective) Emotion	PAB1, PAEE1, PAEE2	
	Trustworthiness	PTD3, PTCO1, PTCO2, PTCO4, PTFO1	
	Intention	PIRI1, PIO1, PICR1	PIIA1, PIW1

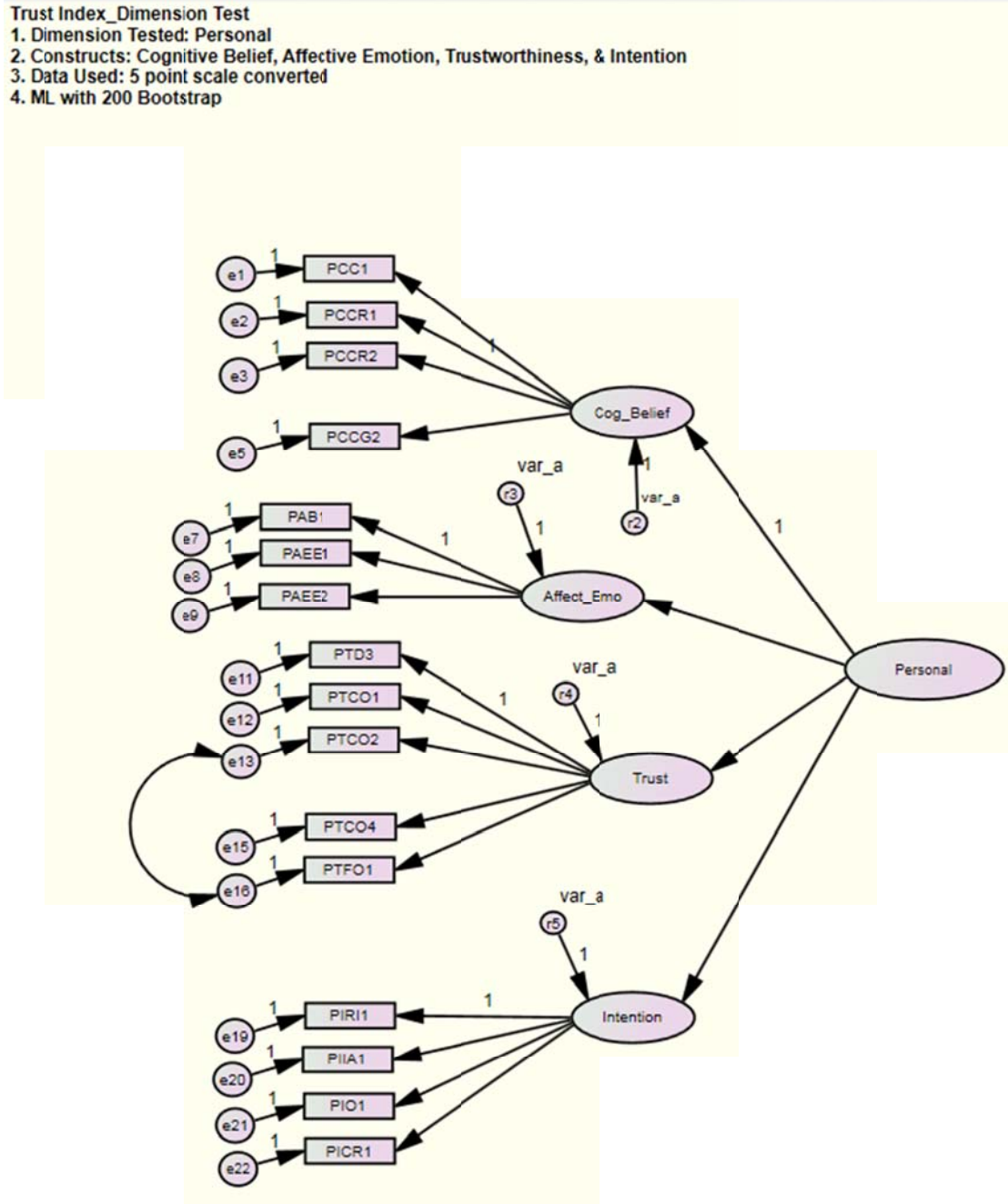
As the first step, the reliability test was conducted with all the dimension's selected items. Cronbach's Alpha is .961 when 17 items are presented. (Table 92.)

Table 92. Reliability Statistics for the Dimension Personal/Subjective

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.961	.961	17

Comparisons were made using two models that, in turn, each contained PIIA1 and PIW1. Since two measurement items simultaneously appeared in the same construct, comparing the way each item contributed to the model was regarded a better way to obtain a solution. The following diagram illustrates PIIA1, when presented. Also, an error variance connection existed between PTCO2 and PTFO1 (M.I.=24.44) based on an unspecified model. PTCO2 asked for responses to “I have a good deal of faith in university as a whole.” PTFO1 asked for responses to “I believe the University does not take advantage of me if I let them.” Both questions used faith-related expressions for different purposes. PTCO2 asked about an individual's confidence in an organization. PTFO1, compared to PTCO2, asked an individual whether he/she believes an organization is taking advantage of certain situations. (Figure 10.)

Figure 10. Specified Model for the Dimension Personal/Subjective



Although similar in wording, both items were retained because they had different purposes in measuring personalized evaluation of an organization.

Based on the fit test, the ratio between Chi-square MIN and DF was 2.1451 ($p=.000$). (Table 91) Close to .95, TLI and CFI were .9373 and .9467, respectively. RMSEA was also in a fair-fit range at .0838. (Table 92) Regarding the given strains on sample size, these fit indices were assumed to be acceptable.

Table 91. CMIN of the Specified Model for the Dimension

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	34	218.8026	102	.0000	2.1451
Saturated model	136	.0000	0		
Independence model	16	2310.0293	120	.0000	19.2502

Table 92. Fit Indices Comparison of the Specified Model for the Dimension

TLI	CFI	RMSEA		
		RMSEA	LO 90	HI 90
.9373	.9467	.0838	.0685	.0991

The second set of comparisons involved another ambiguous item, PIW1, added to the model. (Figure 11.) As previously mentioned, PIW1 received a factor loading of .885 and an *A parameter* value of 3.57 (s.e.=.55) in IRT that creates strong factor loading versus a low ratio between weak parameter value and function of error. As the following results reveal, adding one or a few items did not noticeably change the fit values. The ratio between DF and Chi-Square Min was 2.2485 ($p=.000$). (Table 93.)

Figure 11. Competing Model with Weak Items for the Dimension Personal/Subjective

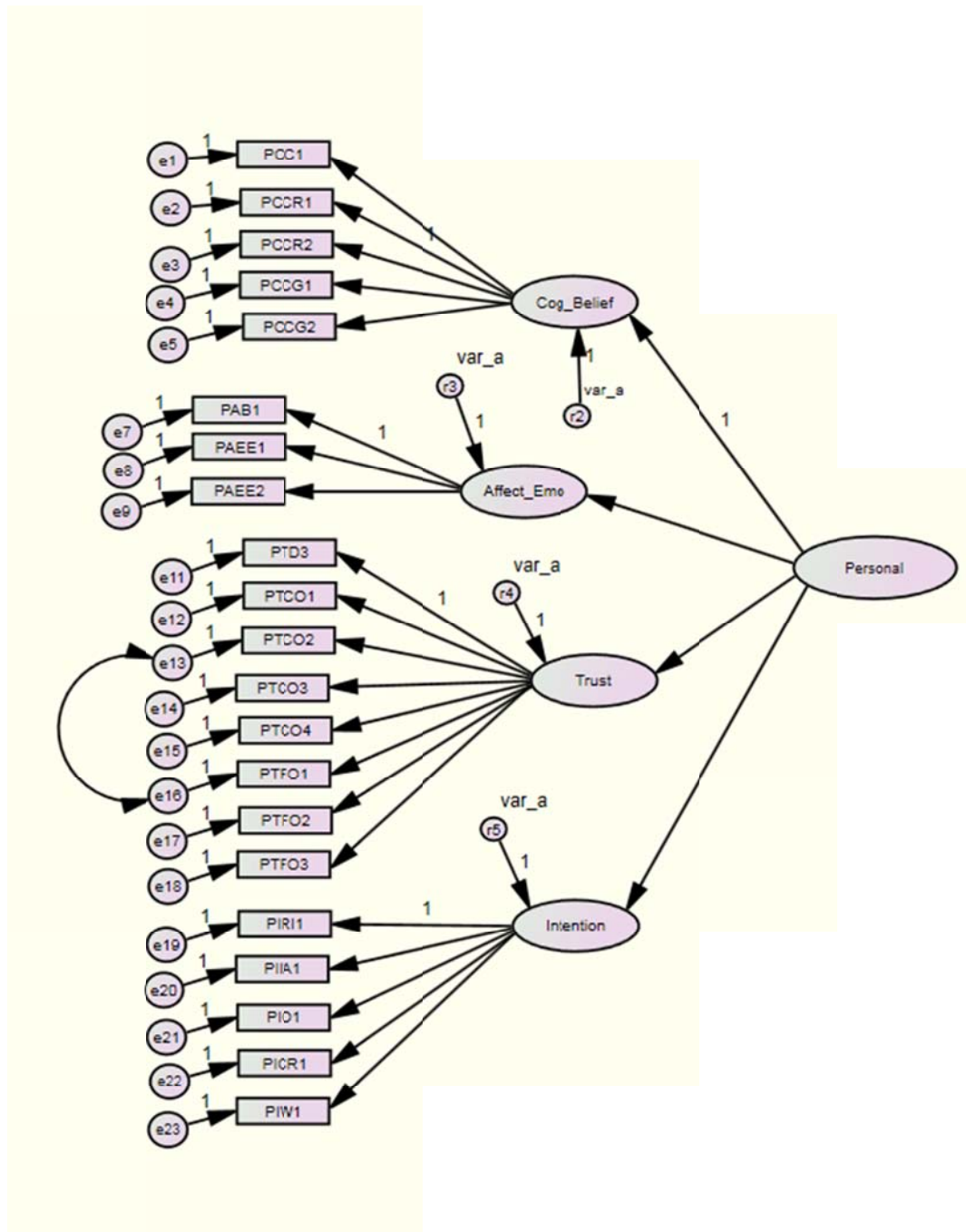


Table 93. CMIN of a Competing Model with Weak Items

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	34	229.3486	102	.0000	2.2485
Saturated model	136	.0000	0		
Independence model	16	2454.6377	120	.0000	20.4553

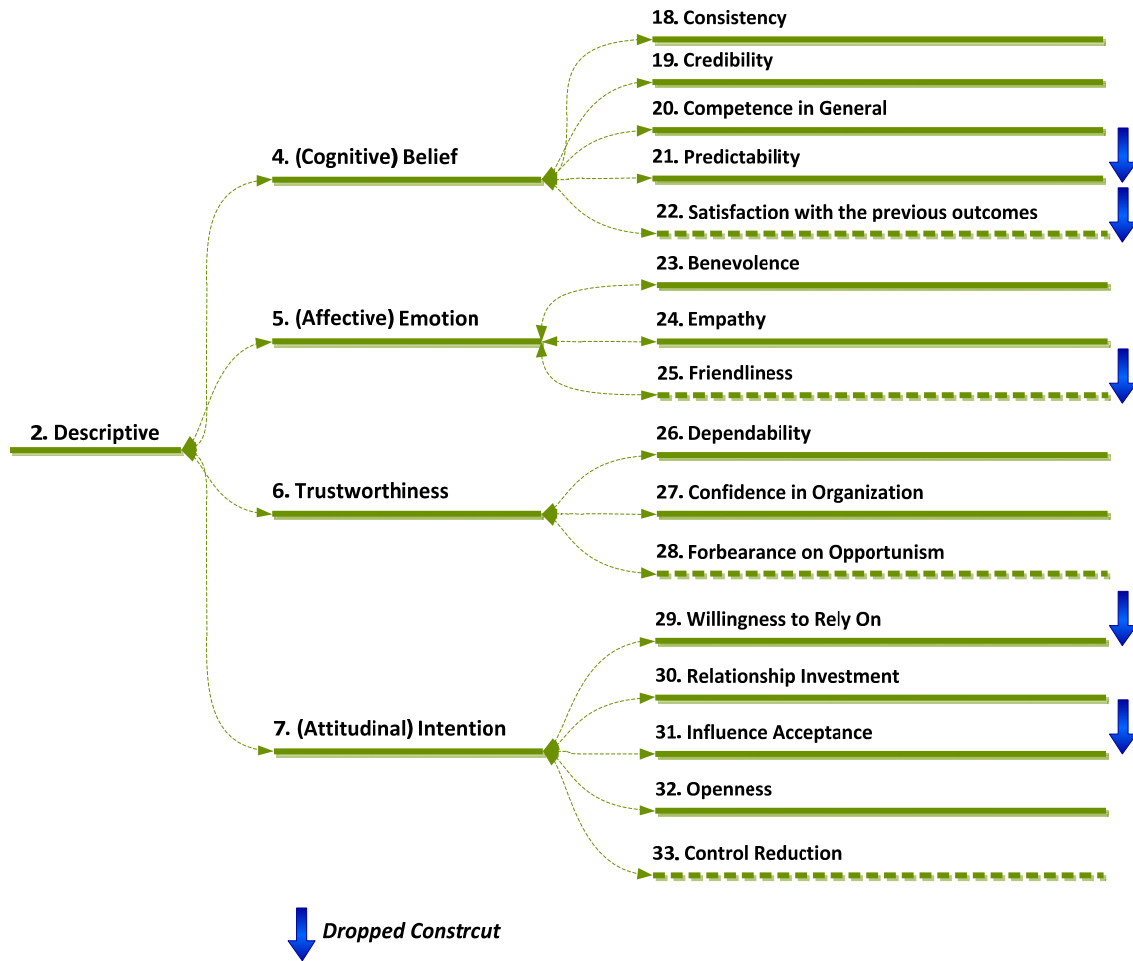
TLI and CFI indicated a slightly loose fit at .9358 and .9455, respectively.

RMSEA also slightly increased from .0838 to .0875, still indicative of a fair fit. Judging from the evidence, it is safe to assume that the first model was the better model for this dimension, Personal/Subjective.

Table 94. Fit Indices Comparison of a Competing Model with Weak Items

TLI	CFI	RMSEA		
		RMSEA	LO 90	HI 90
.9358	.9455	.0875	.0724	.1027

Figure 12. Personal Dimension Finalized



Consequence Dimension – Competing Models and Weak Items. This dimension incorporates communication as a single-item construct; therefore, testing the item's properness through factor analysis was impossible. However, it was possible to measure the fitness of the communication construct in jointed relationship to other constructs and items in the Consequence dimension. The first step was to test the item's reliability. With 10 items, Cronbach's Alphas were .894, lower than two other dimensions in the test, yet still acceptable.

Table 95. Reliability Statistics for the Dimension Consequence

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.894	.902	10

Items for the dimensional fit test also incorporated weak items, CRD1 and CRS2. Fit tests handled two versions of the test: one without the weak items and another with them. To assess the design's property, the communication construct had a separate place in the dimension. Therefore, this dimension test assessed three different pieces.

Table 96. Consequence Dimension Test Items

Dimension	Construct	Items	Items for Further Testing
Consequences	Communication	CCIF1	
	Persuasion	CPCAI1, CPEE1, CPRME1	CPEE2
	Relationship	CRL2, CRLTO1, CRLTO2	CRD1, CRS2

The first step was a merged-communication dimension test not incorporating weak items. Before the results are discussed, the error-variance connection in the diagram for CPRME1 and CRL2 must be explained. CPRME1 asked for responses to “I think the University’s statements are generally acceptable” CRL2 asked for responses to “I am loyal to the University of Tennessee.” Both questions expressed a certain type of causality. Therefore, the items received connection. However, in this case, the modification index was not involved based on the two questions’ semantic connectedness in the dimension matrix. (Figure 12.)

Figure 13. Re-specified Model (Dimension Consequence with merged Communication)

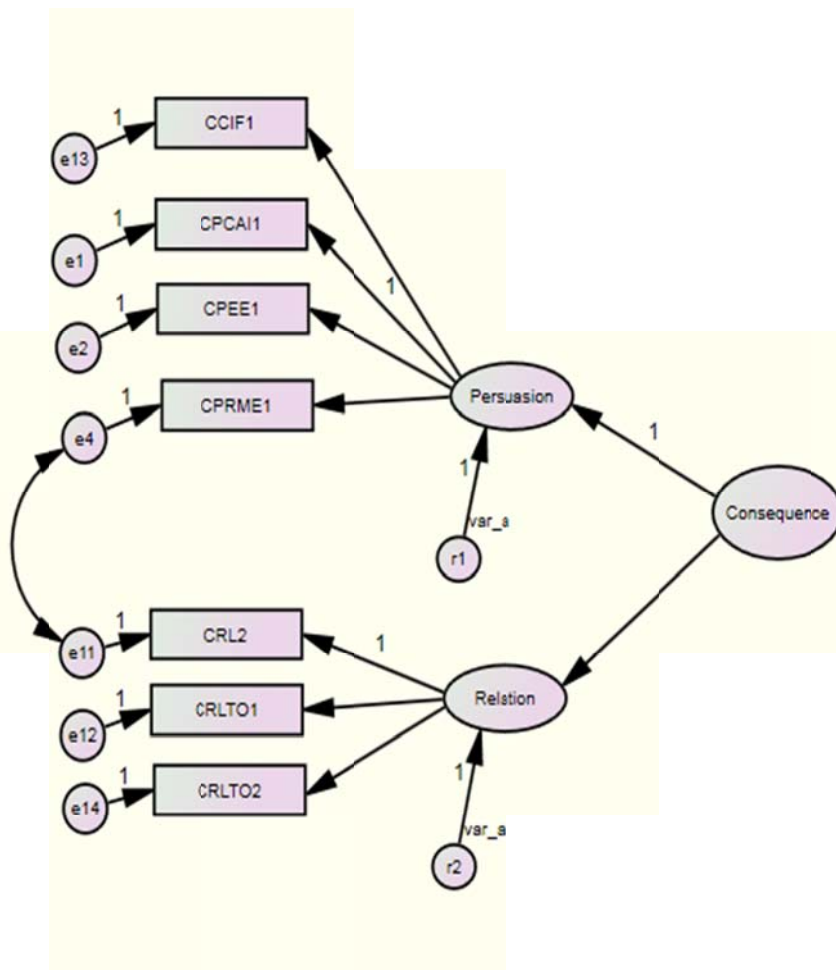
Trust Index_Dimension Test

1. Dimension Tested: Consequences

2. Constructs: Communication, Persuasion & Relationship

3. Data Used: 7 Point Scale Original

4. ML with 200 Bootstrap



Analysis results indicated a somewhat loose fit in the model. The ratio between Chi-Square Min and DF was 1.9576 ($p=.000$). Chi-Square usually means what data actually depicts when compared to a given model. In comparison with the two previous dimensions, the Consequence dimension had fewer items, inviting less power to explain. However, the dimension model had a similar variance level despite the fact that it had been the most parsimonious. TLI and CFI exceeded generally required “close to .95” criteria at .9739 and .9851, respectively. (Table 97.) RMSEA value of (.0766) also indicated a fair fit. (Table 98.)

Table 97. CMIN of the Specified Model for the Dimension with Merged Communication

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	16	23.4917	12	.0238	1.9576
Saturated model	28	.0000	0		
Independence model	7	791.5811	21	.0000	37.6943

Table 98. Fit Indices Comparison of the Specified Model for the Dimension

TLI	CFI	RMSEA		
		RMSEA	LO 90	HI 90
.9739	.9851	.0766	.0272	.1224

The second set of comparisons involved a dimension model with communication as a single construct. The results were worse than the unified model. The ratio between Chi-Square Min and DF was 3.942 as one more construct was formed and added. (Table 99.)

The other fit indices were also not improved. TLI and CFI appeared as .9203 and .9545, respectively, decreasing from .9739 and .9851, respectively, from the previous model. RMSEA was close to a poor fit, .1339, and was closer to .1, which actually means the specified model did not explain one higher order concept, or second order concept, Consequences. (Table 100.) In comparison, the first model still took priority over the second one.

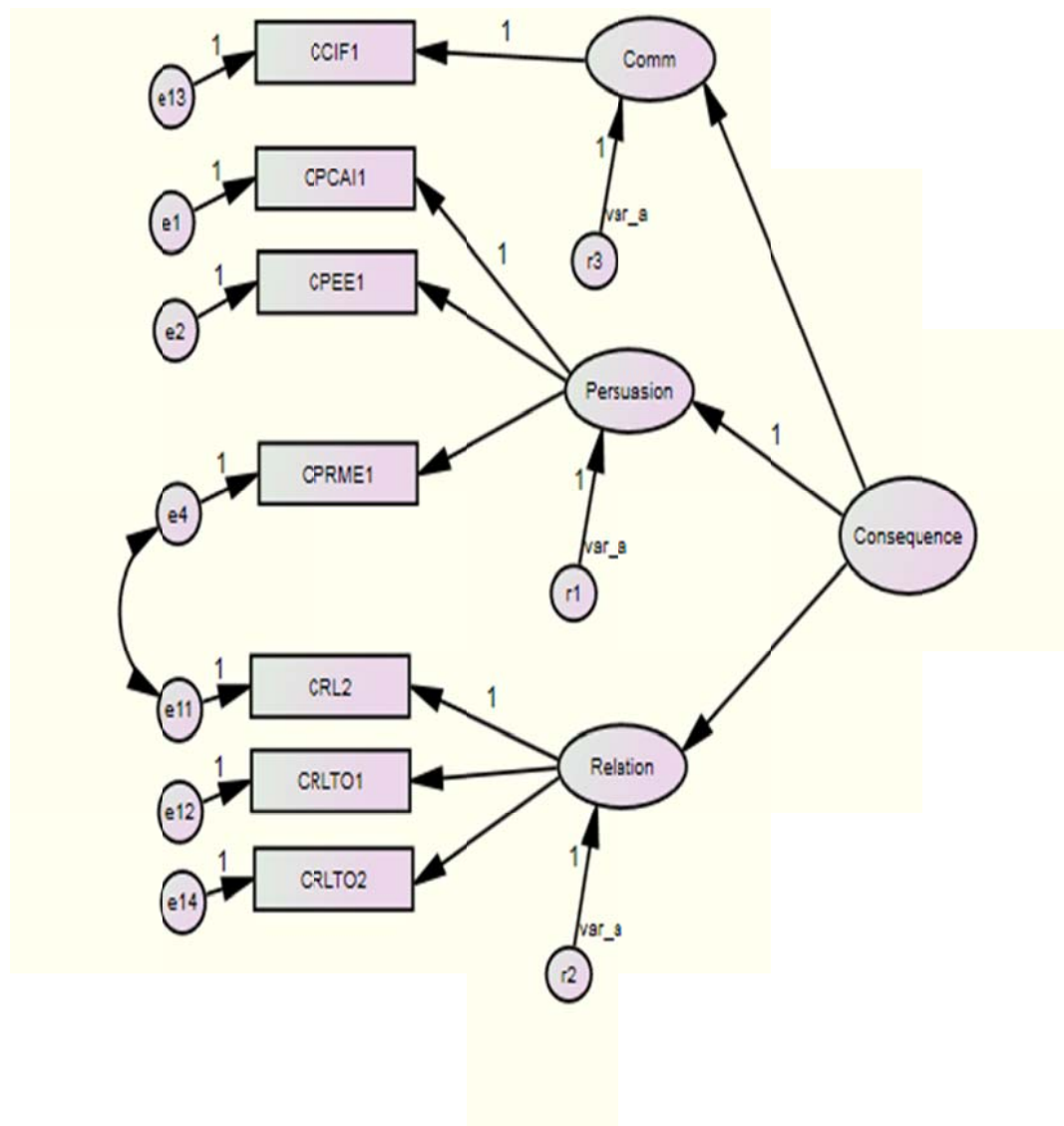
Table 99. CMIN of a Competing Model with Independent Communication Construct

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	16	47.0954	12	.0000	3.9246
Saturated model	28	.0000	0		
Independence model	7	791.5811	21	.0000	37.6943

Table 100. Fit Indices Comparison of a Competing Model with Independent Construct

TLI	CFI	RMSEA		
		RMSEA	LO 90	HI 90
.9203	.9545	.1339	.0950	.1753

Figure 14. Competing Model with Independent Communication Construct



All of the third model's items (CPEE2, CRD1, and CRS2) were weak compared with the first dimension model tested. The third model's fit indices were even worse. The ratios between Chi-Square and DF was 4.9381 ($p=.000$). (Table 101.) TLI and CFI were .8424 and .8844, respectively, and were less competitive compared with the first model. RMSEA was .1554, indicative of a non-functioning model. (Table 102.) Therefore, based on all three models' results, the first model received better attention for the Consequences dimension.

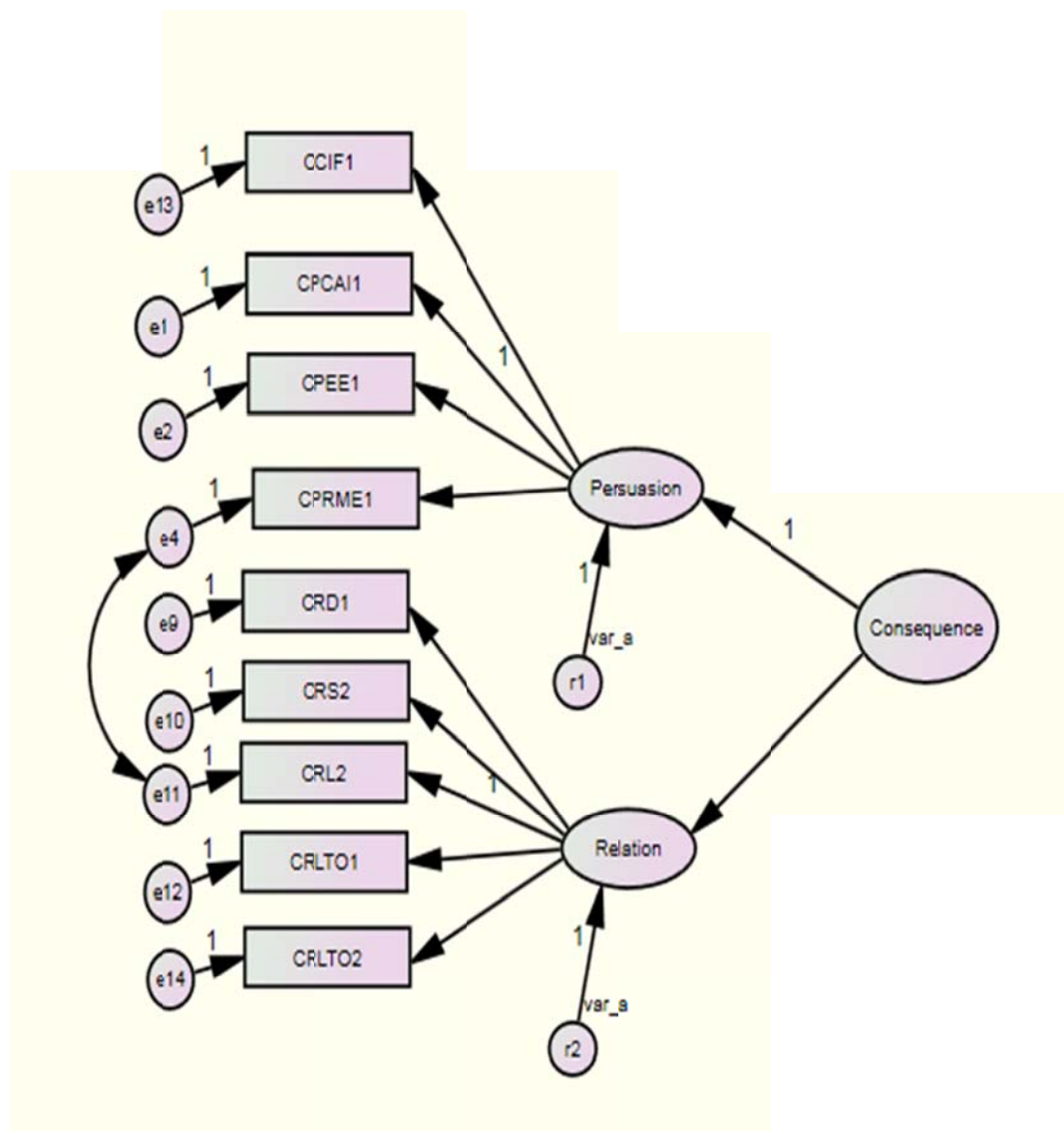
Table 101. CMIN of a Competing Model with Weak Items

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	22	162.9576	33	.0000	4.9381
Saturated model	55	.0000	0		
Independence model	10	1169.1081	45	.0000	25.9802

Table 102. Fit Indices Comparison of a Competing Model with Weak Items

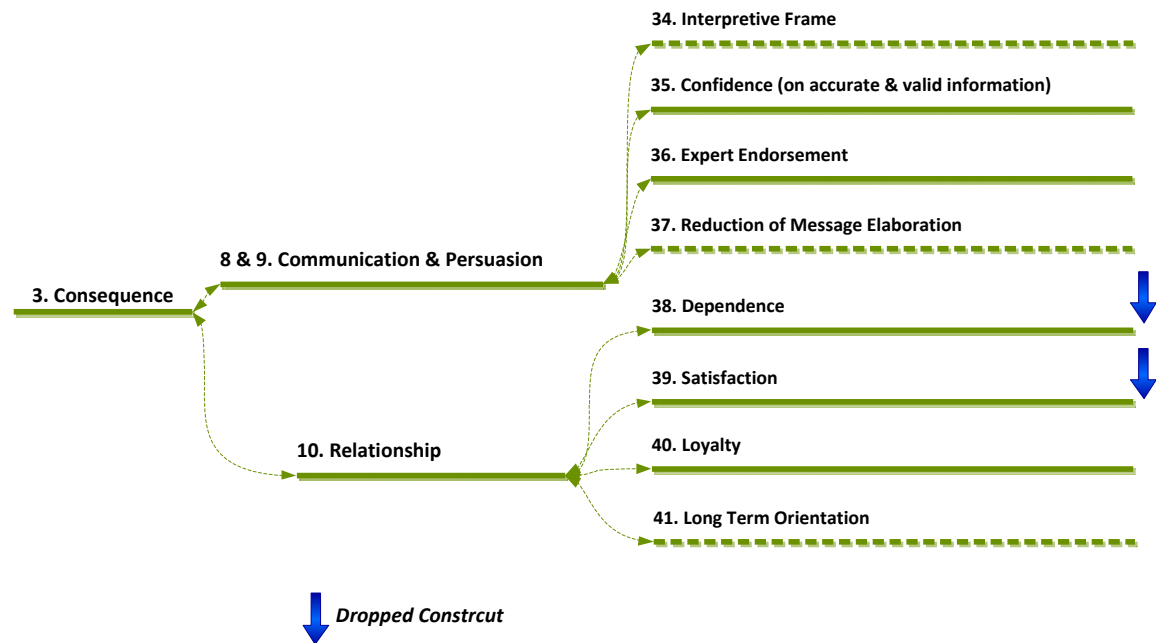
TLI	CFI	RMSEA		
		RMSEA	LO 90	HI 90
.8424	.8844	.1554	.1321	.1796

Figure 15. Competing model with Weak Items for the Dimension Consequence



Throughout the process, an average of more than two competing models was tested in each dimension. Moreover, at a very limited margin, few error-variance connections were allowed so as not to make the models too data specific. Fit indices, ratio between Chi-Square Min and DF, TLI, CFI and RMSEA were used to consider each model's properness based on each model's theoretical foundations. As mentioned, strains on sample size were huge regarding the number of items in the analyses processes for each dimension. However, each dimension satisfied overall acceptance criteria with minimal margin. Therefore, the next step was a validation process using the chosen three dimensions. This process determined what types of information the three dimensions contributed and how well the three dimensions measure responses instead of responding to particular groups of participants. For this purpose, the same model-validation group-data set was used to properly compare and to do an in-depth analysis.

Figure 16. Consequence Dimension Finalized



Measurement Model Validity Test

Dimension (Model) Validity Test – Discriminant and Convergent Validities.

To ensure each dimension's selected measurement model had enough supporting evidence to be acceptable, a few necessary steps were taken to confirm the discriminant and convergent associations among factors and items using cluster analysis. In the most widely accepted ways, correlation values among variables (measurement items) and among factors are measured to assure the model is dependent on the items within and independent from other factors in a given dimension. However, according to Furr and Bachrach (2008), interpretation validity is more tied to the designated study's theory and implication than to the test responses' quantifiable property, such as reliability. Thus, validity influences the scientific process in "a somewhat abstract sense," in that it affects the accuracy of our understanding of the world (p.188). At its foundation of validity concerns, nomological networks (Cronbach & Meehl, 1955), meaning connections between the constructs and other related constructs, must be proven to be embedded in a theoretical context. For this purpose, one of the widely used concepts is correlated relationships among and within items and constructs. The most recent approach is called quantifying construct validity (QCV) (Western & Rosenthal, 2003). QCV calls for quantification results that basically quantify the degree of fit between (a) their theoretical predictions for a set of convergent and discriminant correlations, and (b) the set of correlations actually obtained. This study, however, was not eligible for obtaining such predictions. Therefore, the test was limited to acknowledge how well the chosen measurement items and constructs fit to a chosen dimension by referring to R^2 (squared

multiple correlation) that explains how much a dimension's given items and constructs explain what types of correlated relationships they are supposed to have. Moreover, to better understand how a dimension design works as a conceptual set, test sets were conducted at a dimension level, but not at a construct level,.

Normative Dimension. This dimension's final model contained 18 items. The following analysis results were obtained. (Table 103.)

To a given dimension, Normative, four factors showed moderate-to-strong correlation (.78 to .84) in that items are also correlated at a relatively moderate-to-strong degree (.64 to .90). R^2 of each construct and item is well exceeded (.6 or above). Except for NEOK2, NIRC1, NIRC2, and NIRP1, this dimension showed relatively cohesive performance at its factor level. However, factor correlations were high. Therefore, this dimension required further examination in a validation test using another set of data.

Table 103. Validity Test for the Dimension Normative

		Estimate (R^2)	Correlation
Factor Level	Nor_CG	0.70	0.84
	Exp_Obj	0.63	0.80
	Observed_Integ	0.60	0.78
	Expected_Integ	0.63	0.80
Item Level	NCL1	0.61	0.78
	NCL2	0.51	0.72
	NCS2	0.63	0.79
	NCVC1	0.69	0.83
	NCVC2	0.65	0.81
	NEOK1	0.61	0.78
	NEOK2	0.57	0.76
	NEOTC1	0.79	0.89
	NEOTC2	0.76	0.87
	NEOTC3	0.74	0.86
	NIC1	0.69	0.83
	NIC2	0.76	0.87
	NICON1	0.78	0.88
	NIRC1	0.56	0.75
	NIRC2	0.42	0.64
	NIRP1	0.55	0.74
	NIO1	0.82	0.90
	NIO2	0.77	0.87

Personal/Subjective Dimension. This dimension has four constructs with 16 items. The R^2 for all the constructs well exceeded .8. However, at a factor level, they were highly correlated. According to Muthen (2010), factors tend to correlate as well as it stays independent. Moreover, as previously discussed, commonly used fit indices, TLI, CFI, and RMSEA, tend to generate higher correlations. In fact, correlations are also largely dependent on the nature of items and a study's purpose. This dimension, Personal/Subjective, asked respondents how they feel about an organization based on a flow of perception, emotion, and intention. Thus, higher correlation was anticipated. This dimension was tested through validation tests.

Table 104. Validity Test for the Dimension Personal/Subjective

		Estimate (R^2)	Correlation
Factor Level	Cog_Belief	0.81	0.90
	Affect_Emo	0.90	0.95
	Trust	0.85	0.92
	Intention	0.84	0.92
Item Level	PCC1	0.66	0.81
	PCCG2	0.48	0.70
	PCCR1	0.76	0.87
	PCCR2	0.61	0.78
	PAB1	0.85	0.92
	PAEE1	0.87	0.93
	PAEE2	0.75	0.86
	PTD3	0.57	0.76
	PTCO1	0.83	0.91
	PTCO2	0.85	0.92
	PTCO4	0.64	0.80
	PTFO1	0.59	0.77
	PIIA1	0.52	0.72
	PIO1	0.56	0.75
	PIR11	0.60	0.77
	PICR1	0.56	0.75

Consequences Dimension. This dimension has two constructs with seven measurement items. For persuasion, R^2 is dropped to .59. Along with the result, correlations and R^2 , when compared with other dimensions, are similar at their best. This apparently gives a little contrives when regarding TLI (.97), CFI (.98), and RMSEA (.07) the dimension obtained in the model building process. However, based on the correlation results, the factors and items were seemingly well integrated into the dimension.

Table 105. Validity Test for the Dimension Consequence

		Estimate (R^2)	Correlation
Factor Level	Persuasion	0.59	0.77
	Relation	0.70	0.84
Item Level	CCIF1	0.52	0.72
	CPCAI1	0.70	0.84
	CPEE1	0.82	0.91
	CPRME1	0.58	0.76
	CRL2	0.66	0.81
	CRLTO1	0.86	0.93
	CRLTO2	0.81	0.90

Generally, it seems hard to avoid relatively higher correlation to achieve higher explanation power of each construct (R^2). Moreover, this test was conducted at a dimensional level, not at a construct level, to better understand the measurement design's dimensional performance. It did invite a slightly different perspective for considering the items and dimensions. Therefore, relying strictly on correlation results could be misleading since it mainly shows how items fit into a dimension of interests. However, it required an additional validation study, which is discussed below.

Phase 2 – Measurement Model Validation

As priory steps before confirmatory analysis, the reliability test and preliminary factor analysis were also deployed to check for any disparities requiring further attention. For the 10 constructs, reliability was greater than .80. The following table summarizes the results.

Table 106. Reliability Statistics for Model Validation

Dimensions	Constructs	Cronbach's Alpha	N of Items
Normative	Common Ground	.907	9
	Expertise & Objectivity	.925	8
	Integrity	.925	15
Personal	(Cognitive) Belief	.906	7
	(Affective) Emotion	.846	4
	Trustworthiness	.931	9
	(Behavioral) Intention	.896	6
Consequences	Communication	N/A	1
	Persuasion	.882	5
	Relationship	.861	10

Data Description

Dimension validation tests used the second set of data (N= 140, Missing =4). Using NCSS2007 results, this validation data set's distribution also showed non normality.

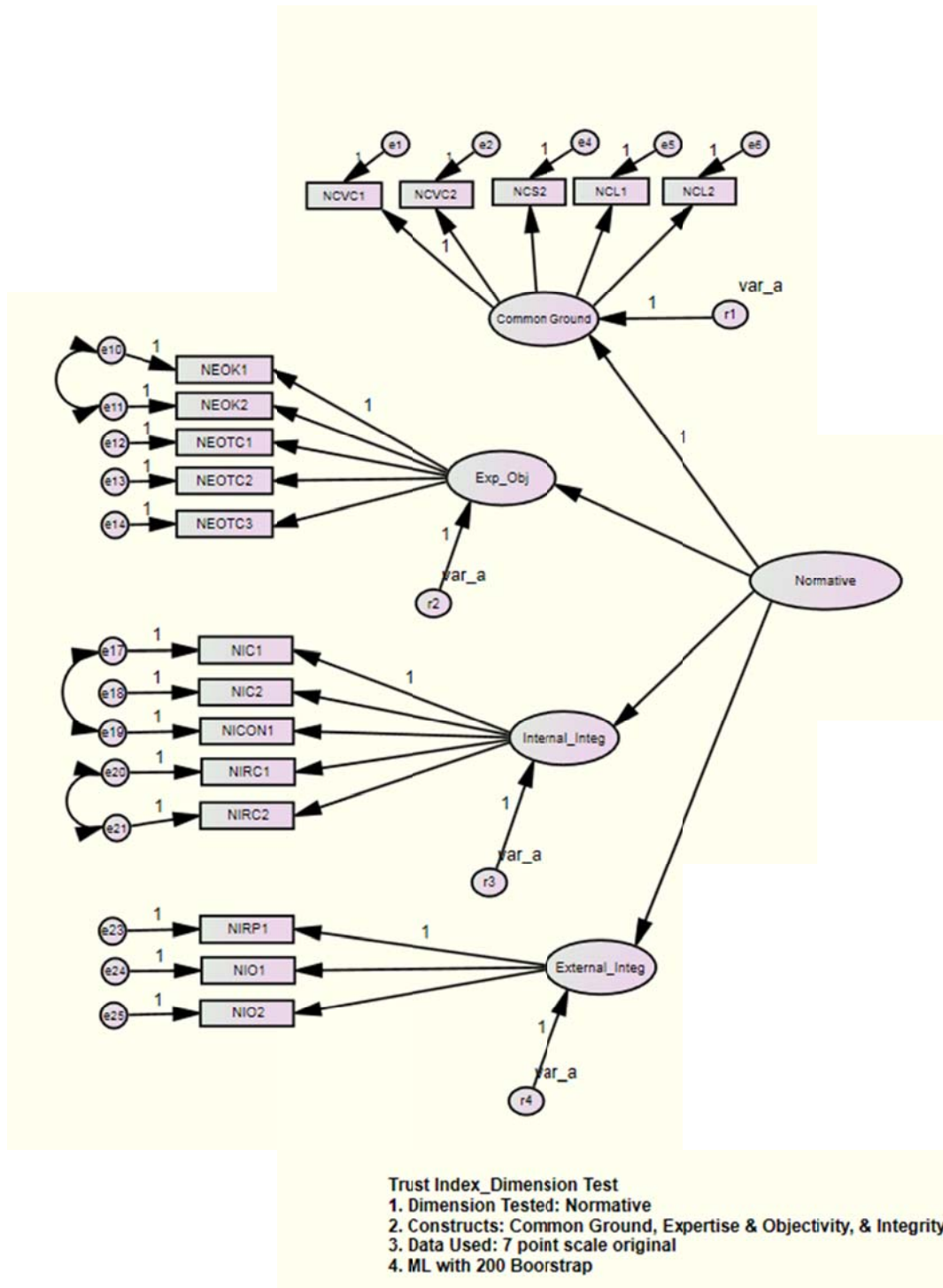
Dimension Tests

Normative Dimension. This dimension, based on the previous item-level analysis, was modified with the Integrity construct split into two conceptual entities: external and internal integrity. Moreover, the following weak items were chosen for further tests: NCR2 relating to reputation, NEOP2 relating to process based, NIH2 relating to internal integrity, and NIFIF1 relating to external integrity. Therefore, the first set of model fitting compared results with and without such weak items in a dimension. (Table 107. & Figure 11.)

Table 107. Test Items for Model Validation – Normative Dimension

Dimension	Construct	Items
Normative	Common Ground	NCVC1, NCVC2, NCS1, NCL1, NCL2
	Expertise and Objectivity	NEOK1, NEOK2, NEOTC1, NEOTC2, NEOTC3
	Internal-Resource Integrity	NIC1, NIC2, NICON1, NIRC1, NIRC2
	External-Resource Integrity	NIRP1, NIO1, NIO2

Figure 17. Validation Model for the Dimension Normative



Before testing the first dimension, a reliability analysis was performed using the dimension's targeted items. The following table shows the results. Eighteen items obtained from the previous analysis showed .944 of Cronbach Alpha value (N=140). (Table 108.)

Table 108. Reliability Statistics for the Dimension Normative

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.944	.945	18

A model with the chosen items and with the split-integrity dimension was tested using AMOS 19 with Maximum Likelihood (ML) based on 200 times of bootstrapping option. The following table shows the results. Using the second set of data (N=140), the following fit indices were obtained. First, the ratio of DF versus Chi-Square MIN was 1.9404 (254.1870/131 & $p=.000$).

Table 109. CMIN of a Validation Model for the Dimension Normative

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	40	254.1870	131	.0000	1.9404
Saturated model	171	.0000	0		
Independence model	18	1963.2936	153	.0000	12.8320

Baseline comparisons using TLI and CFI were .92505 and .9320, respectively. As previously mentioned, TLI tends to underestimate or indicates a bad fit for an acceptable model when the sample size is about 100. Regarding this estimation tendency, Hu and Bentler (1999) recommended a cutoff value of TLI closer to .95. Regarding the arguments about evaluating cutoff value criteria, Hu and Bentler did not explicitly

mention that TLI must exceed .95. To avoid this misspecification issue of TLI, CFI also has to be considered. Hu and Bentler also recommended that CFI be closer to .95. However, they noted that CFI works better with a smaller sample size when compared to TLI. (Table 110.)

Table 110. Fit Indices Comparison

TLI	CFI	RMSEA		
		RMSEA	LO 90	HI 90
.9250	.9320	.0823	.0670	.0973

Another widely used fit index is RMSEA, which is known to have its own distribution. Therefore, it permits calculation of the confidence interval, which helps researchers better understand how the fit index works in relationship with degree of freedom. Furthermore, Browne and Cudeck (1993) suggested that RMSEA values larger than .1 are indicative of poor-fitting models, while values of .05 to .08 ranges are indicative of fair fit. Although less than .05 and .06 are recommended as close fit (Browne and Cudeck, 1993) and cutoff value (Hu and Bentler, 1999) respectively, it is safe to assume that the described model satisfied a fair-fit criteria regarding strains on sample size.

As noticed, three fit indices improved from the results of the model building session, TLI (.825 to .9205), CFI (.846 to .9320), and RMSEA (.129 to .0823), respectively.

Convergent and discriminant validity test results from the previous steps were compared again in this validation process. Despite some changes at an item level, there

were no significant changes in correlation. It is rather regarded as variance generated from shared methodology to a different data set. In the case of R^2 , the changes were assumed to be invited by respondents' characteristics. Overall, it is safe to assume that this dimension was valid across the data sets used for model building and validation test purposes in terms of fit indices and other test results.

Table 111. Validation Statistics for the Dimension Normative

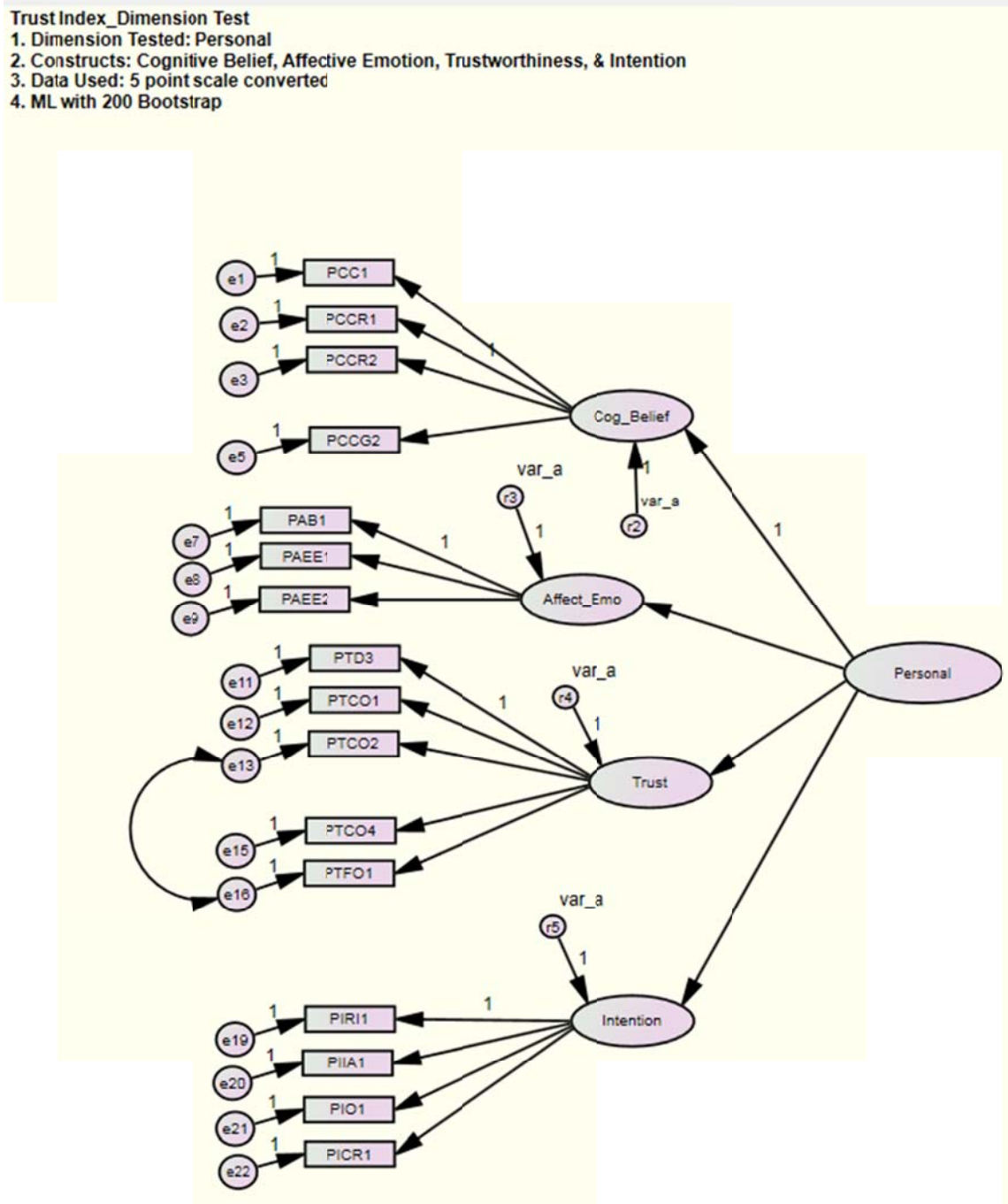
		Model Building		Model Validation		Changes	
		Estimate (R ²)	Correlation	Estimate (R ²)	Correlation	% +/- (R ²)	% +/- (Cor)
Factor Level	Nor_CG	0.70	0.84	0.74	0.86	5%	2%
	Exp_Obj	0.63	0.80	0.64	0.80	2%	1%
	External_Integ	0.60	0.78	0.70	0.84	16%	8%
	Internal_Integ	0.63	0.80	0.75	0.87	19%	9%
Item Level	NCL1	0.61	0.78	0.53	0.73	-13%	-6%
	NCL2	0.51	0.72	0.53	0.72	2%	1%
	NCS2	0.63	0.79	0.63	0.80	1%	0%
	NCVC1	0.69	0.83	0.69	0.83	-1%	0%
	NCVC2	0.65	0.81	0.72	0.85	10%	5%
	NEOK1	0.61	0.78	0.56	0.75	-8%	-4%
	NEOK2	0.57	0.76	0.62	0.78	8%	4%
	NEOTC1	0.79	0.89	0.80	0.89	1%	0%
	NEOTC2	0.76	0.87	0.80	0.89	6%	3%
	NEOTC3	0.74	0.86	0.49	0.70	-34%	-19%
	NIC1	0.69	0.83	0.69	0.83	1%	1%
	NIC2	0.76	0.87	0.63	0.80	-16%	-8%
	NICON1	0.78	0.88	0.55	0.74	-29%	-16%
	NIRC1	0.56	0.75	0.49	0.70	-11%	-6%
	NIRC2	0.42	0.64	0.57	0.75	37%	17%
	NIRP1	0.55	0.74	0.54	0.73	-2%	-1%
	NIO1	0.82	0.90	0.84	0.92	2%	1%
	NIO2	0.77	0.87	0.64	0.80	-16%	-9%

Personal/Subjective Dimension. After item-level analysis, this dimension had 16 measurement items. (Table 112. & Figure 12.)

Table 112. Test Items for Model validation – Personal/Subjective Dimension

Dimension	Construct	Items
Personal /Subjective	(Cognitive) Belief	PCC1, PCCR1, PCCR2, PCCG2
	(Affective) Emotion	PAB1, PAEE1, PAEE2
	Trustworthiness	PTD3, PTCO1, PTCO2, PTCO4, PTFO1
	Intention	PIRI1, PIIA1, PIO1, PICR1

Figure 18. Validation Model for the Dimension Personal/Subjective



As the first step, the reliability test was conducted with all the dimension's selected items. Cronbach's Alpha was .956 when 16 items were presented. (Table 105.)

Table 113. Reliability Statistics for the Dimension Personal/Subjective

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.956	.956	16

The fit test's results were as follows. The ratio between Chi-square MIN and DF is 2.0254 ($p=.000$), a smaller decrease from .2145. TLI and CFI were close to .95 as .9290 and .9397, respectively. However, TLI and CFI were slightly under fitted compared to the previous results (TLI=.9373, TLI=.9467). RMSEA was also in a fair-fit range as .0859, but was slightly under-fitted (.0838).

Regarding strains on sample size, these fit indices were assumed to be acceptable (Table 114. & Table 115.)

Table 114. CMIN of Validation Model for the Dimension Personal/Subjective

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	34	206.5894	102	.0000	2.0254
Saturated model	136	.0000	0		
Independence model	16	1853.2197	120	.0000	15.4435

Table 115. Fit Indices Comparison

TLI	CFI	RMSEA		
		RMSEA	LO 90	HI 90
.9290	.9397	.0859	.0689	.1027

When compared with the previous model building results, the changes in R^2 and correlation were not significant. Again, slight changes in item level were mainly caused by data characteristics. (Table 116)

Table 116. Validation Statistics for the Dimension Personal/Subjective

		Model Building		Model Validation		Changes	
		Estimate (R^2)	Correlation	Estimate (R^2)	Correlation	% +/- (R^2)	% +/- (Cor)
Factor Level	Cog_Belief	0.81	0.90	0.85	0.92	5%	2%
	Affect_Emo	0.90	0.95	0.84	0.92	-6%	-3%
	Trust	0.85	0.92	0.84	0.91	-2%	-1%
	Intention	0.84	0.92	0.82	0.90	-3%	-1%
Item Level	PCC1	0.66	0.81	0.67	0.82	2%	1%
	PCCG2	0.48	0.70	0.59	0.77	21%	10%
	PCCR1	0.76	0.87	0.74	0.86	-3%	-2%
	PCCR2	0.61	0.78	0.70	0.83	14%	7%
	PAB1	0.85	0.92	0.71	0.84	-17%	-9%
	PAEE1	0.87	0.93	0.72	0.85	-16%	-9%
	PAEE2	0.75	0.86	0.69	0.83	-8%	-4%
	PTD3	0.57	0.76	0.61	0.78	6%	3%
	PTCO1	0.83	0.91	0.83	0.91	0%	0%
	PTCO2	0.85	0.92	0.84	0.91	-2%	-1%
	PTCO4	0.64	0.80	0.64	0.80	-1%	0%
	PTFO1	0.59	0.77	0.54	0.73	-10%	-5%
	PIIA1	0.52	0.72	0.52	0.72	1%	0%
	PIO1	0.56	0.75	0.67	0.82	20%	10%
	PIRI1	0.60	0.77	0.54	0.74	-10%	-5%
	PICR1	0.56	0.75	0.56	0.75	1%	1%

Consequence Dimension. This dimension incorporates communication as a single-item construct. (Table 117.) As it is single stand-alone item-based construct, testing the items' properness through factor analysis was impossible. Therefore, the construct was merged with the Persuasion construct in the previous steps. Based on previous model identification, the reliability test was performed. (Figure 13.)

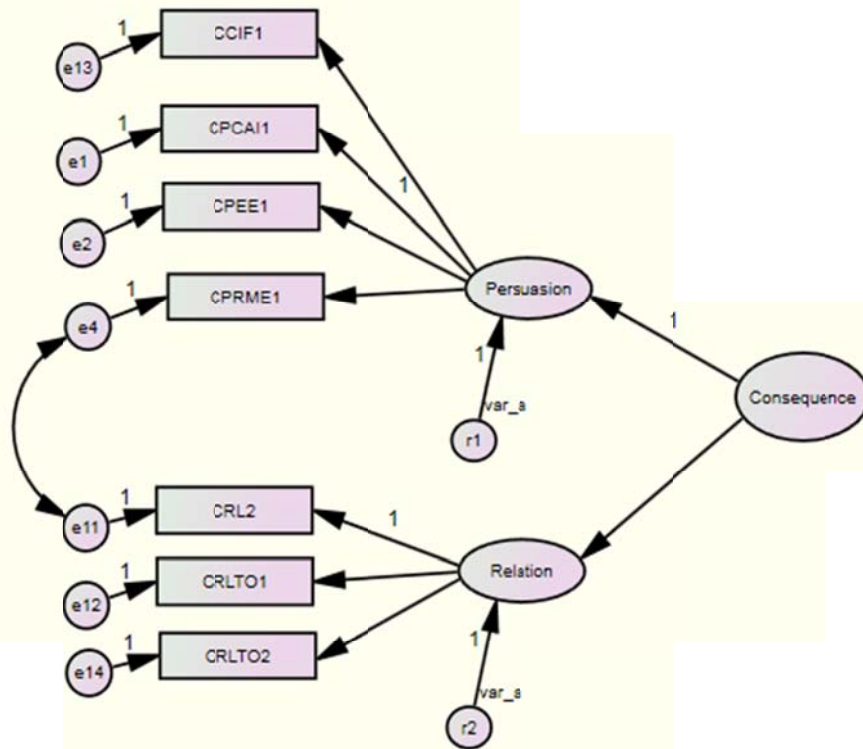
Table 117. Test Items for the Dimension - Consequence

Dimension	Construct	Items
Consequences	Communication	CCIF1
	Persuasion	CPCAI1, CPEE1, CPEE2, CPRME1
	Relationship	CRD1, CRS2, CRL2, CRLTO1, CRLTO2

Figure 19. Validation Model for the Dimension Consequence

Trust Index_Dimension Test

1. Dimension Tested: Consequences
2. Constructs: Communication, Persuasion & Relationship
3. Data Used: 7 Point Scale Original
4. ML with 200 Bootstrap



Reliability statistics, in comparison with other dimensions, slightly decreased, but still remained in an acceptable range. (Table 118.)

Table 118. Reliability Statistics for the Dimension Consequence

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.894	.902	10

Analysis results indicated a somewhat loose fit in the model. The ratio between Chi-Square Min and DF was 3.4499 ($p=.000$). Chi-Square usually means what the data actually depicts when compared to a given model. Compared with the two previous dimensions, the Consequence dimension had fewer items, which invited less power to explain. Moreover, as a consequence, the parsimony caused more variance in the dimension model. However, TLI and CFI exceeded the generally required “close to .95” values at .9592 and .9767, respectively. Although a certain level of complication might occur when referring to RMSEA values (.0911) that indicate an inclination toward a poor fit, other fit indices still supported the model’s fit in this analysis. However, TLI, CFI, and RMSEA indices all decreased or indicated loose fits compared to the first model’s indices (TLI=.9739, CFI=.9851, & RMSEA = .0766). (Table 119 & Table 120)

Table 119. CMIN of Validation Model for the Dimension Consequences

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	16	41.3994	12	.0000	3.4499
Saturated model	28	.0000	0		
Independence model	7	1281.0140	21	.0000	61.0007

Table 120. Fit Indices Comparison

TLI	CFI	RMSEA		
		RMSEA	LO 90	HI 90
.9592	.9767	.0911	.0617	.1222

The comparison of model validity showed a possible clue to the changes. In terms of R^2 changes, Relationship, which asks about long-term orientation, was affected by significant changes from the validation data set's responses, while results at the item level stayed almost intact. (Table 121.)

Table 121. Validation Statistics for the Dimension Consequence

		Model Building		Model Validation		Changes	
		Estimate (R^2)	Correlation	Estimate (R^2)	Correlation	% +/- (R^2)	% +/- (Cor)
Factor Level	Persuasion	0.59	0.77	0.62	0.79	5%	3%
	Relation	0.70	0.84	0.22	0.47	-69%	-44%
Item Level	CCIF1	0.52	0.72	0.51	0.72	0%	0%
	CPCAI1	0.70	0.84	0.71	0.84	1%	0%
	CPEE1	0.82	0.91	0.79	0.89	-5%	-2%
	CPRME1	0.58	0.76	0.54	0.74	-6%	-3%
	CRL2	0.66	0.81	0.31	0.56	-53%	-31%
	CRLTO1	0.86	0.93	0.82	0.90	-5%	-2%
	CRLTO2	0.81	0.90	0.82	0.91	2%	1%

Assessment of the Measurement Contribution

Overall, three dimensions demonstrated very similar results whether with the model building data set or with the model validation data set. The moving trends of fit indices are arranged in the following Table 122.

Table 122. Moving Trend of Fit Indices – Model Building versus Model Validation

Dimensions		CMIN/DF	TLI	CFI	RMSEA
Normative	Building	2.58	.8981	.9134	.0986
	Validation	1.94	.9250	.9320	.0823
Personal/Subjective	Building	2.14	.9373	.9467	.0838
	Validation	2.02	.9290	.9397	.0859
Consequence	Building	1.95	.9739	.9851	.0766
	Validation	3.44	.9592	.9767	.0911

For further assurance, the three dimensions' average scores were calculated to check whether they were different in terms of dimension discrimination. The following formula (Figure 14.) was used to calculate the average score:

Figure 20. Formula for Calculating Dimensional Composite Score

$$\frac{Item1 + Item2 + \dots + Item N}{Total\ number\ of\ chosen\ items\ in\ a\ dimension}$$

Using each dimension's average scores, t-test was performed. The following table shows the results. Based on these results, each dimension depicted a different aspect of trust in terms of relationship judgment. Furthermore, Normative and Personal dimensions showed a weak trend of skewness and kurtosis; and, as a result, responses to the two dimensions showed normality in their distribution. The Consequences dimension,

unlike the other two dimensions, did not show normality in its distribution regarding high kurtosis and skewness. This information might reversely explain why the model validation's last dimension experienced greater changes in R^2 values. The last dimension, in its distribution character, had highly condensed responses at some points, particularly at relationship constructs. Although fit indices and t-test results might have satisfied this session's purpose, data characteristics are discussed in detail as part of possible improvement tips. (Table 123.)

Table 123. Mean Comparison using the Composite Scores for the Dimensions

Descriptive Statistics Section						
Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Normative	140	5.186466	0.8802052	7.439092E-02	5.033382	5.33355
T for Confidence Limits = 1.9772						
Tests of Assumptions Section						
Assumption	Value	Probability	Decision(.050)			
Skewness Normality	-1.1546	0.248267	Cannot reject normality			
Kurtosis Normality	-0.2941	0.768667	Cannot reject normality			
Omnibus Normality	1.4195	0.491758	Cannot reject normality			
Correlation Coefficient						
T-Test For Difference Between Mean and Value Section						
Alternative Hypothesis	T-Value	Prob Level	Reject H0 at .050	Power (Alpha=.05)	Power (Alpha=.01)	
Normative<=0	69.7191	0.000000	Yes	1.000000	1.000000	
Normative<0	69.7191	1.000000	No	0.000000	0.000000	
Normative>0	69.7191	0.000000	Yes	1.000000	1.000000	
Descriptive Statistics Section						
Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Personal	140	4.975	1.044018	0.0882356	4.800542	5.149457
T for Confidence Limits = 1.9772						
Tests of Assumptions Section						
Assumption	Value	Probability	Decision(.050)			
Skewness Normality	-1.2551	0.209436	Cannot reject normality			
Kurtosis Normality	-0.3649	0.715167	Cannot reject normality			
Omnibus Normality	1.7085	0.425605	Cannot reject normality			
Correlation Coefficient						
T-Test For Difference Between Mean and Value Section						
Alternative Hypothesis	T-Value	Prob Level	Reject H0 at .050	Power (Alpha=.05)	Power (Alpha=.01)	
Personal<=0	56.3831	0.000000	Yes	1.000000	1.000000	
Personal<0	56.3831	1.000000	No	0.000000	0.000000	
Personal>0	56.3831	0.000000	Yes	1.000000	1.000000	
Descriptive Statistics Section						
Variable	Count	Mean	Standard Deviation	Standard Error	95.0% LCL of Mean	95.0% UCL of Mean
Consequence	140	5.262143	0.9581508	8.097852E-02	5.102034	5.422252
T for Confidence Limits = 1.9772						
Tests of Assumptions Section						
Assumption	Value	Probability	Decision(.050)			
Skewness Normality	-2.5414	0.011042	Reject normality			
Kurtosis Normality	1.3690	0.171002	Cannot reject normality			
Omnibus Normality	8.3326	0.015509	Reject normality			
Correlation Coefficient						
T-Test For Difference Between Mean and Value Section						
Alternative Hypothesis	T-Value	Prob Level	Reject H0 at .050	Power (Alpha=.05)	Power (Alpha=.01)	
Consequence<=0	64.9820	0.000000	Yes	1.000000	1.000000	
Consequence<0	64.9820	1.000000	No	0.000000	0.000000	
Consequence>0	64.9820	0.000000	Yes	1.000000	1.000000	

Model Validation Using Sub-Groups

As described in the previous session, each dimension depicted a different aspect of the respondents' trust-based relationship judgments. Using a set of inter-related questions, each dimension read different responses. Therefore, understanding what difference the measurement model actually depicts is important because it is where the measurement model may create its own value and contribution.

Using the same validation data set (N=140), the following index scores were calculated and converted to a 100% based normal score for easy read-out. The respondents' group ranked in the top 73.4% in terms of trust toward organization. (Table 124.) What does that result say? It is, of course, harder to determine what it says than to gauge whether the score is higher or lower than a certain level of expectation. However, the score itself and an in-depth analysis using the results provide a better understanding. What does the score say about the respondents? Does the score reveal the difference, if any, in respondent groups? How does the result contribute to public relations practices? The following analysis will hopefully answer these questions.

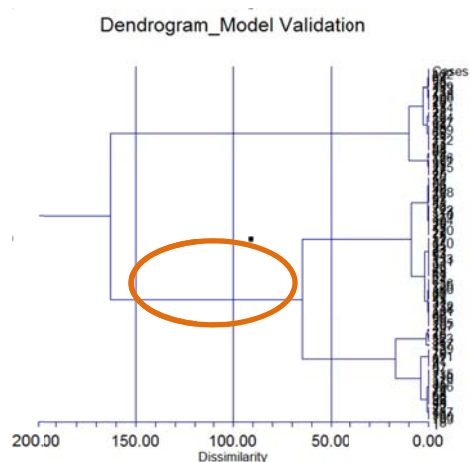
Table 124. Calculated Composite Scores

	Normative	Personal	Consequence	Index Average
Raw Score	5.18	4.97	5.26	5.14
Converted to 100% Scale	74%	71%	75%	73.4%

Hidden Groups Behind the Scores. Using cluster analysis, the data set was split into several different smaller groups for comparison purposes. This analysis used each dimension's calculated average scores. To find suitable cluster sizes, hierarchical clustering with Wald's linkage method (also known as Wald's minimum variance method) and z-score standardization option were used. For extraction, two to five clusters were asked, based on dissimilarity index, to compare how many observations belonged to each formed cluster, or cluster membership. For this analysis, SPSS 20 and NCSS 2007 were used. One of the bottom lines kept for splitting observations into clusters was to make each cluster a reasonable size (such as no more than 30 cases) for other analysis for each cluster. The same analysis procedure was performed for each dimension.

Normative Dimension. As a first step, cluster analysis was performed without specifying the required numbers of clusters. To make an optimal decision, dendrogram was used. (Figure 15.)

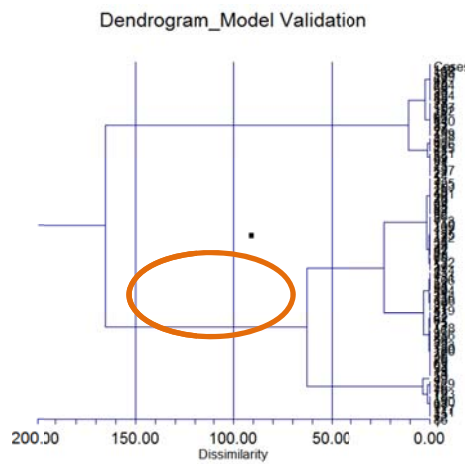
Figure 21. Wald's Linkage Dendrogram – Normative Dimension



In referring to the dendrogram, two-cluster setup indicated by a circle was expected to be better than single- or three-cluster setup. Therefore, cluster membership results were saved to a data table by establishing a cut-off line for cluster at two.

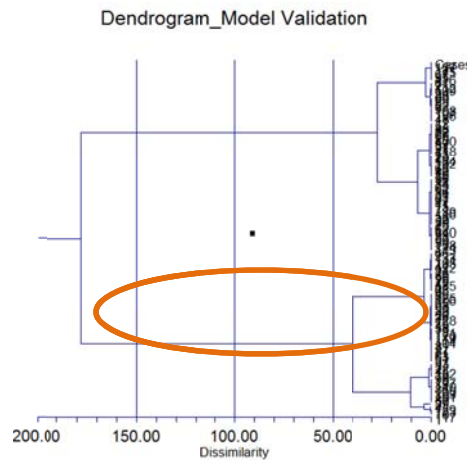
Personal/Subjective Dimension. This dimension followed the same procedure and also showed very similar dendrogram results. Therefore, two-cluster setup was used. (Figure 22.)

Figure 22. Wald's Linkage Dendrogram – Personal/Subjective Dimension



Consequences Dimension. This dimension also followed the same procedure, using two-cluster set-up as with the other dimensions. (Figure 23.)

Figure 23. Wald's Linkage Dendrogram – Consequence Dimension



Based on the results, three dimensions using two-cluster setups were chosen. However, this cluster analysis did not return favorable goodness-of-fit indices. Three major references for cluster fit indices are cophenetic correlation, delta (.5), and delta (1.0). Mather (1976) suggested .75 or higher value for cophenetic correlation and sub-zero values for two delta indices as recommendable values. However, regarding the limited sample size, criteria values were not obtainable for this specific session. Therefore, goodness of fit for the cluster analysis was tentatively disregarded. However, at least 30 cases for each cluster were achieved. (Table 125.)

Table 125. Cluster Membership Results

Clusters	Normative	Personal/Subjective	Consequence	Index
Cluster 1	61 (43.3%)	95 (67.4%)	74 (52.5%)	92 (65.7%)
Cluster 2	79 (56%)	45 (32%)	66 (46.8%)	48 (34.3%)
Total	140 (100%)			

Cluster-membership results were used for descriptive purposes. (Table 126.) Specifically, student-activity item groups consisted of two descriptive items (activity check and frequency), experienced emphasis, and reasons for choosing the university.

Table 126. Student Activity Check List

	Purpose of the Questions	Types of Scale
Activity check list	List of student activities and living circumstances	Binary: Yes or No (Multiple responses)
Emphasis	Experiential values the University emphasizes	7-point scale evaluative
Reasons choosing the University	Reasons for choosing UT	Binary: Yes or No (Multiple responses)
Participation scale	Frequency of participation	7-point scale descriptive

Among these four- groups, experienced emphasis only asked for evaluative judgments, while the other three-item groups only asked for the variety of activities and the frequency of the respondents' participation. Therefore, the first comparison set was made using MANOVA on five evaluative judgment items about the University: academic abilities, creative qualities, analytical abilities, occupational competence, and practical values that participants have felt the University emphasizes. Three of the five items were about academic emphasis, while the other two emphasized career- related

qualities. As the tables show, responses split into two cluster memberships (cluster 1 and cluster 2) taking different stances compared to the five evaluative- judgment items.

(Table 127.)

Table 127. MANOVA Comparison using the Clusters on Evaluative Judgment Items

MANOVA Tests Section

Term(DF) Test Statistic	Test Value	DF1	DF2	F-Ratio	Prob Level	Decision (0.05)
A(1):Normative_Cluster						
Wilks' Lambda	0.910956	5	134	2.62	0.027049	Reject
Hotelling-Lawley Trace	0.097748	5	134	2.62	0.027049	Reject
Pillai's Trace	0.089044	5	134	2.62	0.027049	Reject

MANOVA Tests Section

Term(DF) Test Statistic	Test Value	DF1	DF2	F-Ratio	Prob Level	Decision (0.05)
A(1):Personal_Cluster						
Wilks' Lambda	0.916597	5	134	2.44	0.037651	Reject
Hotelling-Lawley Trace	0.090992	5	134	2.44	0.037651	Reject
Pillai's Trace	0.083403	5	134	2.44	0.037651	Reject

MANOVA Tests Section

Term(DF) Test Statistic	Test Value	DF1	DF2	F-Ratio	Prob Level	Decision (0.05)
A(1):Consequence_Cluster						
Wilks' Lambda	0.887270	5	134	3.41	0.006285	Reject
Hotelling-Lawley Trace	0.127053	5	134	3.41	0.006285	Reject
Pillai's Trace	0.112730	5	134	3.41	0.006285	Reject

MANOVA Tests Section

Term(DF) Test Statistic	Test Value	DF1	DF2	F-Ratio	Prob Level	Decision (0.05)
A(1):Index_avg_cluster						
Wilks' Lambda	0.913180	5	134	2.55	0.030842	Reject
Hotelling-Lawley Trace	0.095074	5	134	2.55	0.030842	Reject
Pillai's Trace	0.086820	5	134	2.55	0.030842	Reject

If participants had felt differently about what the University emphasizes at an individual level, they might have pursued a different university life based on different interests. As they differed, cluster 1 and cluster 2 for each dimension would likely have different descriptive values. Using the student-activities checklist and participation scale, descriptions for each dimension's cluster are as follows.

Table 128. Composite Score Comparison – Cluster 1 vs. Cluster 2

	Normative	Personal	Consequence	Index Average
Cluster 1 (Raw Score / %)	4.72 (67.4%)	4.42 (63.1%)	4.79 (68.4%)	4.64 (66.3%)
Cluster 2 (Raw Score / %)	6.07 (86.7%)	6.04 (86.3%)	6.17 (88.1%)	6.10 (87%)

As the table indicates, cluster 1 earned lower scores across the three dimensions as well as on the trust index itself (top 66% point location). In contrast, cluster 2 obtained a higher score across the three dimensions along with the trust index itself (top 87% point location). Just as the two clusters differed in general trust scores, they also differed in description. The following analysis was performed based on Index total cluster memberships. (Table 129.)

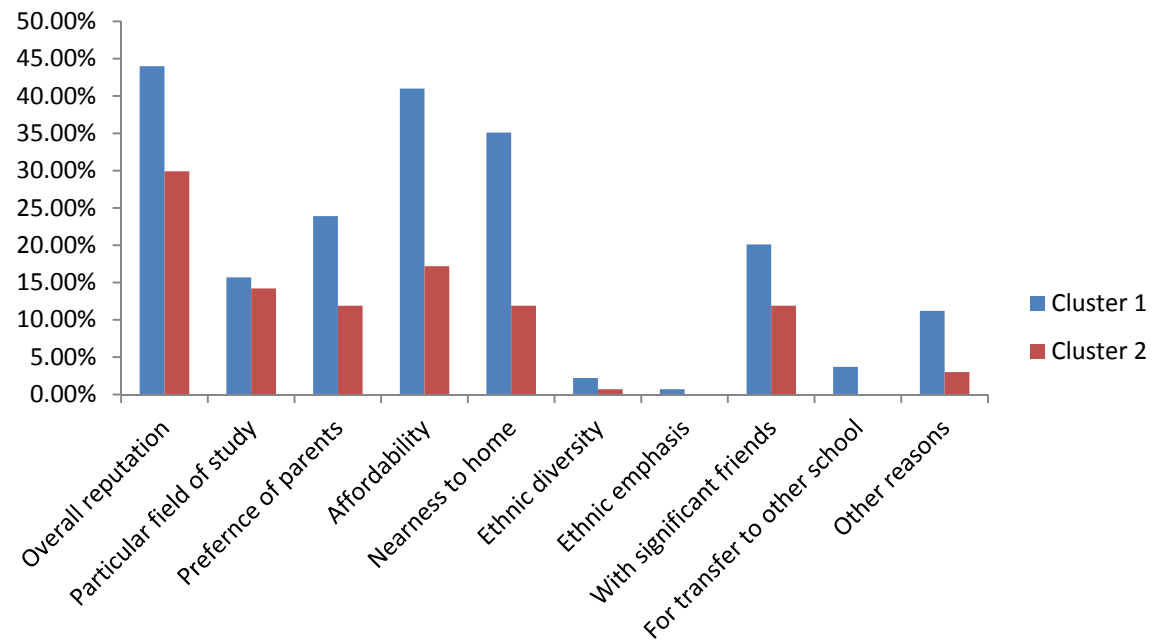
Table 129. Gender Composition in the Index Cluster

G * Index CLU Crosstabulation					
			Index CLU		Total
			1	2	
Gender	Male	Count	32	12	44
		% within Index CLU	35.6%	25.0%	31.9%
	Female	Count	58	36	94
		% within Index CLU	64.4%	75.0%	68.1%
Total		Count	90	48	138
		% within Index CLU	100.0%	100.0%	100.0%

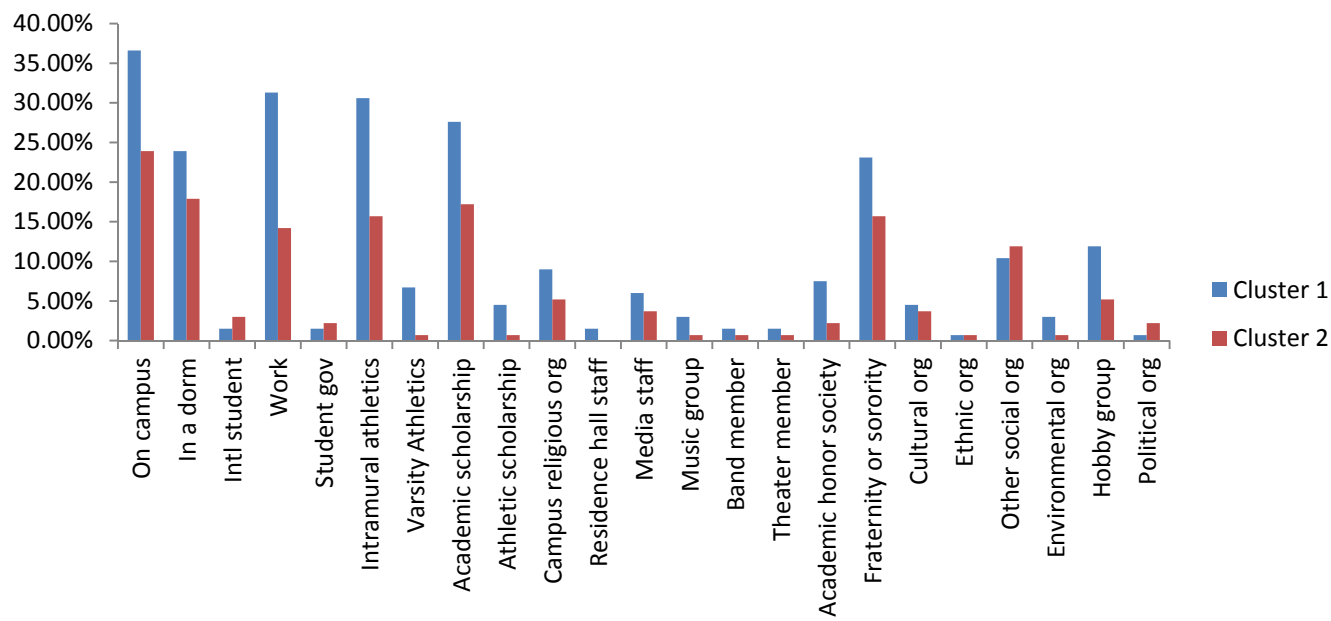
First, the reasons for choosing UT were analyzed, and somewhat contrasting results were obtained. Students in cluster 1, who voted for lower scores, demonstrated an inclination toward general appraisal of the University, while cluster 2 was more inclined to a specific major's reputation. (Graph 1.)

As the results for the student-activity check list indicated, students in cluster 2, compared with students in cluster 1, showed less participation in sports activities, fraternity activities, and hobby group-related activities. Cluster 1 showed higher involvement rates in academic scholarship, media staff, and academic honor membership. An apparent physical difference was also found whether or not students had part-/full-time jobs. Although students in cluster 1 described themselves as being involved in many campus activities, their magnitude of participation, in terms of participation frequency, was not better than that of students in cluster 2. (Graph 2. & Graph 3.)

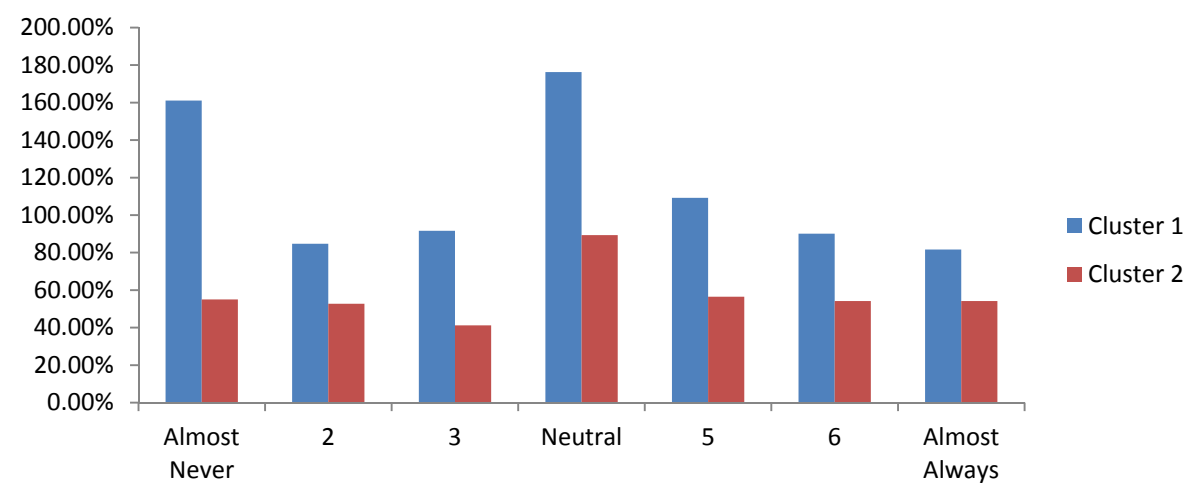
Graph 1. Reasons of Choosing UT



Graph 2. Student Activity Check List Results Based on Cluster Membership



Graph 3. Participation Frequencies



In a nutshell, cluster 1 and cluster 2 showed controversial characteristics when the scores obtained through the trust index were compared. If no subsequent analysis, such as cluster analysis, had been performed, the results could have been misleading by accepting general measurement scores without proper filtering. Moreover, two different groups suggested strategically different approaches to promoting trust to enhance organization-student relationship. For convenience, cluster 1 was named “active complainers,” while cluster 2 was named “inactive appraisers.” Active complainers, according to the descriptive analysis, chose the University based on recommendations, opening up wide relational networks, and, consequently, trying to participate in various relational networks but not actually reaching their own goal. This may indicate the group’s dissatisfaction they have realized afterwards. Unlike cluster 1, inactive appraisers chose the University inclined toward a specific major, managing a moderate level of relational network, and, consequently, managing a satisfaction level and obtaining a modest outcome through the network. For convenience of description, this type of classification may have been regarded as rudimentary. However, as an example of describing who rates what, this piece of analysis could help practitioners to better understand their stake holders and/or targeted audiences. In reality, choosing a better group over the other for strategic advantage is difficult. This index’s results, however, may suggest target- specific message tactics and, if necessary, to help make tactical evaluation when choosing media channels to have a better approach to the target, cluster 1 or cluster 2.

CHAPTER 5

INSIGHTS FROM THE MODEL AND FROM THE DEVELOPMENT PROCESS

Insights from the Model and from the Development Process

As previously discussed in the literature review, based on Habermasian ideas of understanding that is a synonym with a validation process of trustworthiness of the claims raised by an organization, this study suggests a way to scrutinize how students as a relevant public or as stakeholders understand and validate the claims of the University as a public institution utilizing the developed measurement scale. Moreover, this study's another contribution is to be the idea of using the concept of trust as a key component in measuring the magnitude of relationships.

Trust, through the escalated academic attention of public relation scholars and their continuous efforts, has become one of the important indicators of relationship quality (Ferguson, 1984; Grunig, 1993; Ledingham, 2003). By paying a closer attention to relationship quality and as Grunig (2006) argued through a series of his paradigmatic discussions, public relations has made continuous transitions to substantive behavioral relationship building from outdated pursuit of symbolic representations, or image building. This rising trend of seeking behavioral substances in public relations has invited the idea of relationship management, which has become one of the fundamental ideas of management functions across all public relations practices. As Center and Jackson (1995) claimed, relationships and attaining them in a positive light have been the key purpose of relationship management practices. In fact, the relational concept in public relations is also found in many different applications of public relations practices,

which actually covers a major portion of current public relations practices. Therefore, to have a better understanding of relational concepts and to find better applications to promote a positive relationship from a perspective of relationship management, it has become critical to understand what constitutes and promotes the desired relationships. Scholars and practitioner, to the call, have readily escalated the importance of trust as a key ingredient of public relations practices. Moreover, as escalating interests in trust appear in various fields other than public relations, it becomes worthwhile to develop ways to diagnose how public relations is functioning in terms of trust building and its contribution in relationship management practices.

This study, based on the growing importance of the trust in relationship management practices, has tried to respond to the needs. As discussed redundantly in the methodology - scale development section, this study's entire sample set is limited in its size. (Please refer to 'Data Normality and Scale Options' for more details.) However, this study provided evidence of an existence of a conceptual structure of trust from a perspective of relationship (management) between an organization and people who belong to or regarded as having various types of connections with an organization. The fit indices obtained from the model building and validation processes actually fall within the range of a fair fit. (Table122.) In fact, scale development is a complex process involving many choices regarding data screening, model fit strategies, statistical tests to build and compare models, and model validation processes calling for proper or even rigorous statistical and nomological validation efforts (Cabrera-Nguyen, 2010). This study, regarding all of the aspects of scale development process, shed light on the possibility of acceptable connections among and between the measurement items,

whether within the given dimensions or within the constructs tested. To better understand the term ‘nomological’ when it is used with the ideas of trust, it is better to think of a human’s thought process of trust. The process works as a set of connections that link up many fragments of ideas, images, and meanings of trust. The connections that have been proved in the study actually are a web of meanings and the ways of acknowledging values (or trust) in the given human thought process. Therefore, tested items, dimensions, and constructs are actually a snapshot of such connections that form a nomological network of trust in relationship judgments. In other words, this study, at a certain degree, validated the existence of the network under influence of accumulated relationships management practices between an organization and its publics. Moreover, regarding the measurement scale’s scarcity in public relations, this study would have been further weighted in terms of its importance.

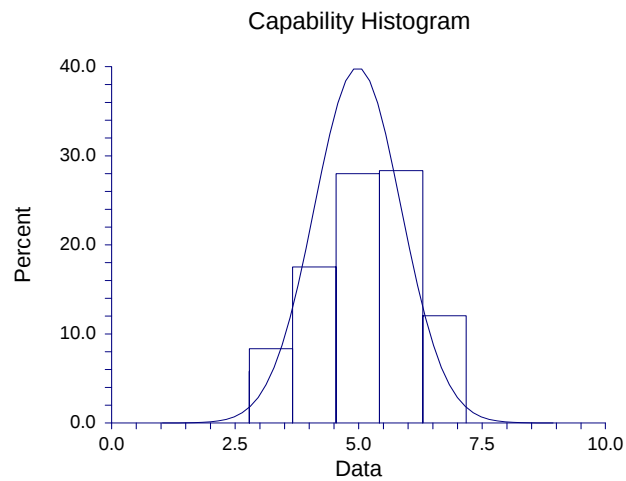
Limitations and Possible Future Improvement

Limitations - Data Normality and Scale Option

As previously mentioned, the response distribution is not normal. This type of distribution is common in social science unless a huge amount of data is collected, which will eventually invite a stable distribution of the sampled population. Unfortunately, in some cases, obtaining the proper number of participants becomes one of the hardest tasks to perform. This study was also one of the cases of sample size and distribution related issues.

First, the model building data set had non-normal distribution. As the histogram shows, the data set had a tendency to have positive skewness with less kurtosis with an existing plateau on the point five and point six areas. (Figure 24.)

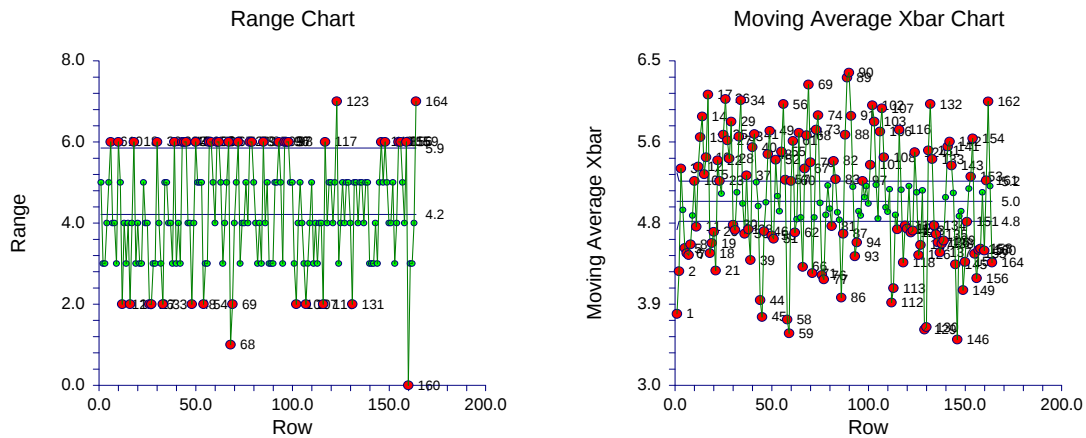
Figure 24. Distribution Characteristics of 1st Data Set



Because the given data set had a substantial skeness of responses, it generates a bigger mean-value shift, either up with higher score responses or down with below median responses.

The moving average chart, which shows mean shift representing value shifts as cases are added, reveals the trend very clearly. (Figure 25.)

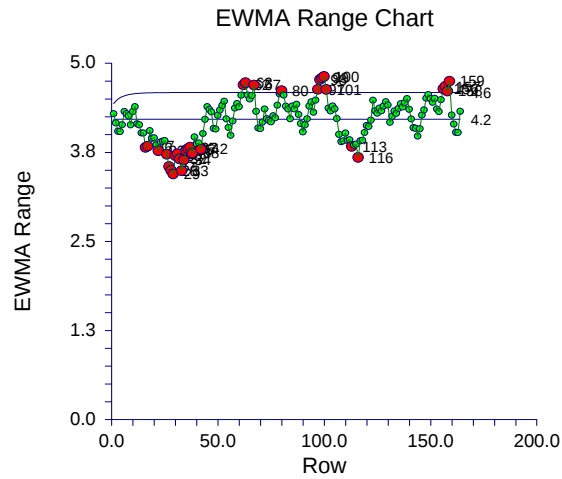
Figure 25. Moving Average and Rated Value Range of the Responses



As the mean shift is constant, its range of the value shift tends to be wider when compared to that of normally distributed data set. The Exponentially Weighted Moving Average (EWMA) chart is known as a tool calculating shifts in the mean-value change as cases are added that is known to be robust to non-normal distribution.

The chart shows that a group of responses falls outside of the expected tolerance range of the mean of mean-value shift. (Figure 26.)

Figure 26. EWMA of the Responses



Again, with the model-validation data set, data characteristics were rechecked. The response distribution is almost identical to the model-building data set. Furthermore, response range is widely scattered. As it spreads, the moving average also noticeably moves either up or down. (Figure 27. & Figure 28.)

Figure 27. Distribution Characteristics of 2nd Data Set

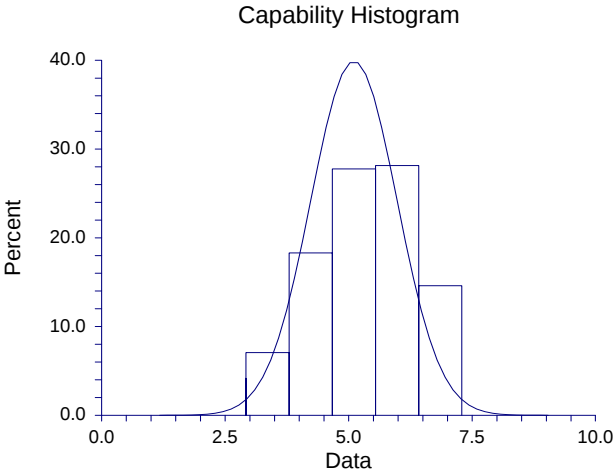
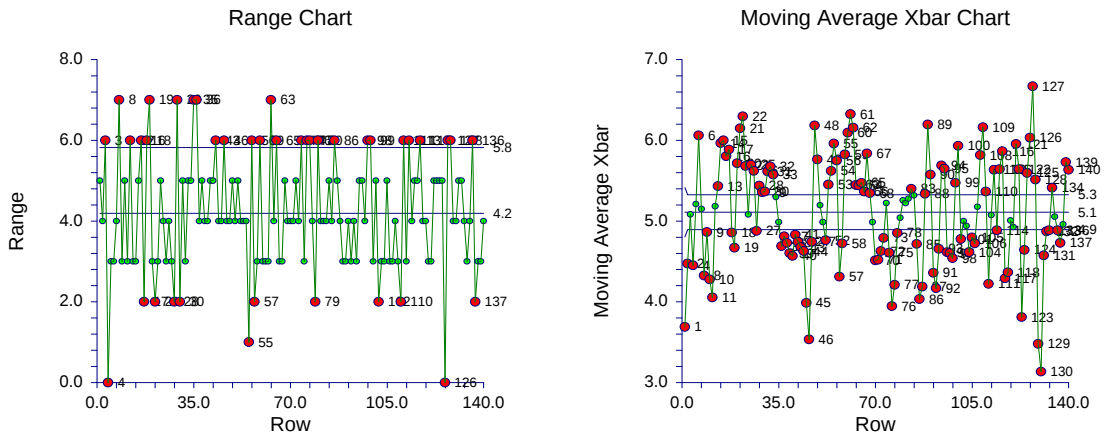


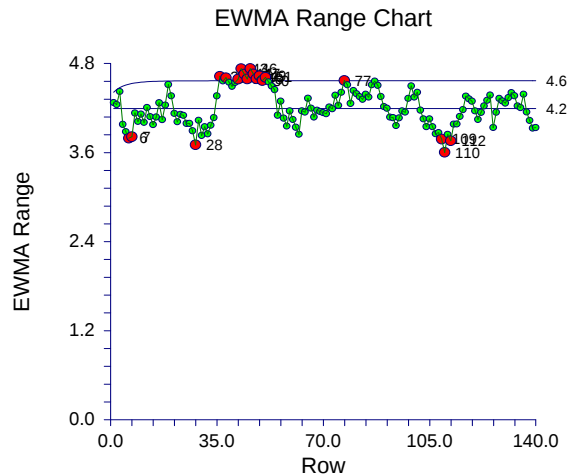
Figure 28. Moving Average and Rated Value Range of the Responses



As the response distribution shifts in a wide range, the mean of mean-value shift shown on the EWMA chart also shifts.

Although the model validation set's range, when compared with that of the model building set is better in terms of a shifting range, the model validation data set still keeps the trend of a wide moving range. (Figure 29.)

Figure 29. EWMA of the Responses



Combined the information of data-character analysis, the results suggested two different issues. The first issue is about limited sample size. In many cases, a bigger sample size has been a simple cure for this type of instability in a data set. The second issue is a skewness of responses. The skewness is regarded to be a by-product of the scale options used in the test. As shown on the range charts on both model building data set and model validation data set, relatively fewer observations exist within the scale option one to three ranges, whereas high density is found in other response options on the used scale. These sparsely inhabited responses, when statistically treated with higher value responses, actually have been the driving force of the mean shifts. In assumption, this trend is not believed to be entirely relevant to the choice of scale option. In other words, it may not have been statistical issues. Once a certain magnitude of attitude is

formed, particularly in this type of organization-stakeholder relationship, respondents tend to show positive attitude (or responses) as long as they regard themselves relevant to the organization. Therefore, it rather is close to an influence of social pressure.

Regarding the data sets' response range and mean shift, the scale option (7-point scale) becomes critical, inviting further consideration. Generally, the students, as long as they are clear about their reasons for choosing the University, would not have an extremely negative attitude toward the University. Otherwise, they would not have chosen the University. This assumption applies to not only this university-student relationship, but also other types of organizations' relationships. If people in an organization are asked about their relationship judgment using the idea of trust, pluralistic responses are to be expected, either as a result of social pressure or a natural response of people belonging to an organization. If this assumption is a solid interpretation of the phenomenon, then a 5-point scale, instead of a 7-point scale, can be an alternative because a 5-point scale forcefully narrows the responses' unnecessary spectrum. When sample size becomes bigger, it handles this situation to a certain degree. However, it is limited to statistical rigor, instead of being a solution that handles the nature of responses.

Model Interpretation

Although the model contributed to confirm how trust works in relationship management practices, the model also has shed light on the needs for careful interpretation. Except for the sample size, comparing the model's first design and the final version obtained through validation processes is valuable to understand the limitations. Started from the first dimension, Normative had 32 measurement items,

including common ground, expertise and objectivity, and integrity. Of those items, 18 were selected as valid entries to the dimension. Interesting enough, the integrity construct's complex nature resulting from asking about an organization's overall quality was particularly sensitive and controversial. Therefore, the integrity construct had to be split into expected and observed integrity respectively based on the statistical analysis results. The expertise and objectivity construct's reputation-related items, system-related items, and process-based items did not survive after the confirmatory factor analysis. Along with these items, free information flow, honesty, and delegation of control-related items from the integrity construct did not survive as well. As discussed through data characteristics and cluster analysis, each data set used for model building and validation showed skewness toward the higher ends in the given scale options. When asked to make rational judgments about an organization, it is assumed that students who seemingly choose the University based on their favorable attitude offered less variant responses.

The Personal/Subjective dimension started with 26 measurement items, and 15 measurement items were left. Predictability construct and satisfaction-related construct were dropped after confirmatory analysis. The constructs were also characterized as hard (or less promoted) regarding the major portion of the participants' limited experiences because they were asked about "seasoned evaluations" of the organization. The consequence dimension, which started with 16 measurement items, had 7 items left. However, this dimension did not show any noticeable changes from the original design.

In part, less variant responses and dropped items could have been resulted from a certain type of social pressure, lack of understating of what have been asked for, or, simply, by dominant favor in their attitude. Regarding these items' critical nature of

finding psychological magnitude when evaluating an organization's qualitative characteristics, this phenomenon may have been possible. Even when the index is applied to other types of organizations, this phenomenon could be a recurring event as long as the scale is trying to measure attitudinal magnitude of trust or distrust toward an organization with people who already have established a certain level of relationship. However, with this study's limited evidence, it is not clear enough to decide whether it will be a recurring event. It is because the lack of clarity could also have been caused by complexity of the items used for the construct that were eventually over-loaded questions such as delegation of control, regulatory protection, the order an organization is supposed to keep, and a public organization's competence in fulfilling duties. Regarding the targeted participants' characteristics, UT undergraduate students, such measurement items may have been less promoted or hard questions.

In general, the entire measurement model showed an acceptable level of fit indices through confirmatory analysis and drew distinctive dissimilarities among the groups of resultant classifications through cluster analysis. For the points, this measurement model contributed at a certain degree. However, generalizations referred to this study's findings with its limited spectrum of responses could possibly be regarded as a sensitive choice. Moreover, it seems unwise to disregard off-the-list questions because different organizations would need those types of questions to enhance the index's applicability and adoptability. Therefore, further examination is required to consolidate the items for different scenarios.

Possible Future Improvement

Further studies on individual dimension and construct

Individual dimensions and constructs in the developed model are potent to invite further improvement. As previously mentioned through the literature review section, a major portion of ideas are coming from various fields of studies other than public relations. Taking ideas from various sources, it has been technically impossible to cover all current topics of trust in the fields. Moreover, in reality, it is impossible to form a single set of representative dimension of trust when referable sources are continuously evolving. Furthermore, at its conceptual level, trust is readily complicated and subjective. Therefore, it rather is risky to define trust with few limited words and concepts. However, this aspect of less-firm boundary of the concept itself is not only a possible down-side resulting from the limited coverage, but also helps to extend the current boundary of trust studies, particularly at dimensions and constructs levels. It is because the concept can be tailored to wherever it is called for. In other words, even if the dimensions of this study stay unchanged, there is a room to improve or to tweak the structure of the dimensions simply by employing and/or deploying relevant items of the designated dimensions as the study progresses. As a result, this process would eventually bring a new or a different structure of a dimension, which will carry the same definition and functionality in the entire measurement model.

Each dimension in the model, normative, subjective, and consequence dimensions, takes rather a static definition as it becomes a part of the entire measurement model.

However, as the construct and item selection process have shown, the items and the constructs that have become the test of interests were more dynamic and far less static since they have to be dropped, added, or separated without affecting the definition of the constructs or the functionality of the dimensions. For instance, each dimension has taken roughly a half of original set of measurement items after statistical screening. However, it was hard to find any reason to modify the pristine definitions of the constructs and the dimension only by the reason of having fewer items remained. As another example, the integrity construct in normative dimension, communication construct in consequence dimension were separated or merged to form more suitable constructs after the tests.

Less-firm boundary of the concept itself allows this modification without hampering any delicacy of the original constructs and dimensions. This actually enlightens possibilities of further improvement of the developed model when each dimension receives more or better attention. Therefore, study-worthy parts in future studies using the developed concepts will be the individual dimension. The individual dimension, as a piece of the whole measurement model, when further enhancement is added, creates functionality of the model where it belongs to, invites flexible access for further tweaking in a boundary of a given context, supports the nomological value of the model as long as it fits, and enhances the measurement accuracy as it supports the model.

Further Studies on Questions (Items of Interests)

This study is actually composed with two different sections, main measurement items and a set of profiling questions such as student participating questions. Main measurement items, or questions, in this measurement development study came from

various fields of study. Some of the questions were readily qualified ones that came from public relations related fields and met the goal of measuring intended responses.

However, other questions were purposefully tweaked for this study's purpose, and, as a result, it may leave room for further improvement. For instance, some of the trustworthiness items came from political science, while others came from interpersonal-relationship studies. If the study stretches its boundary to measure trust in various organization-public settings, this mixture of sources may raise a question of properness of the items as long as items are added to or modified in the basic model proposed here. It is because the questions' pristine purposes and design may have been better suited with other fields of studies. Therefore, changing the purpose of or adding the measurement items that come from other fields of studies will require more delicate approaches as a part of future studies regarding the fit of the chosen questions with the entire measurement model.

Although modification made to the main measurement items, including future ones if necessary, calls for attention, other parts of the study has to be customized as the model is applied to other sets of trust measuring situations. College life profile questions (Lounsbury, 2002) used in the clustering analysis could be one of the examples. The questions were originally developed for making students' depression scale. However, it also has shined in making group classifications in this study. Transforming the original purpose, in this case, find other usability. The profiling questions are in fact to be developed based on understandings of the target organization and its publics. Source for the type of question vary widely from census data to market research data that describes

an organization's publics or customers. Moreover, based on situations, it can be easy to obtain such description related facts or data as an organization has kept working on its on-going communication activities with its publics. In fact, the set of profiling questions that helps to better understand the results can be compared to a different set of tires for the same car to make it run on different road conditions. It gives opportunities to cover different kinds of ground. Exactly the same logic applies.

As a beginning of such efforts, this study calls for substantial investment in the future to make the model more usable and to make the results easy to understand and find better strategic implications. Usability of the measurement model is heavily relied on this portion of the measurement model. Filtered and refined questions will create opportunities of how it can be used and will determine how much it will satisfy organizations and their publics in terms of achievement they are looking for as a result of relationship management practices.

Possible statistical improvements

As in the data characteristic session, analysis parts need further attention. The first part is the scale option. The Likert scale, which is different from Liker item as a sum of several Likert items, is basically a bipolar scaling method measuring a positive or negative attitude toward a statement (James & Perla, 2007). Therefore, the scale is arbitrary. Although more options on a scale are regarded as better in terms of avoiding tight-sloped variation, such options only fit if the scale well represents the given measurement situation (Alvin & Ronald, 2008). The scale option used in this study can be one of the examples. Likert items on a Likert scale are equidistant to represent

symmetry of responses, or Likert items. However, symmetry of responses is largely dependent on an assumption of centroid approximation (Geoff, 2010). As previously mentioned, this study's participants had reasons for choosing to be in the organization. In this case, representing symmetry of response by using a commonly recommended scale option is in doubt. Referring to the data-characteristics analysis, it is possible to assume that a 5-point scale would work better for not leaving almost empty responses in the scale's lower-grade options. However, this assumption requires further tests to arrive at a conclusive point.

Another set of efforts the model may make in the future studies is to add further analytic schemes to the basic model of this study. As a simple demonstration, cluster analysis was introduced to show what the composite scores of trust measurement depict beyond the scores themselves. Although the analysis results are preliminary, utility and potential of the basic model should not be limited at its current stage. For instance, latent class analysis will invite further insights to form better understandings to any given organization-public relationships.

Statistical approaches that can compensate data characteristics call for attention. Although the approach was varied, throughout the study the data distribution's non-normality was obvious. To overcome this issue, data transformation and bootstrapping can be used with various rotation options, if necessary. However, statistical analysis software packages offer limited treatments, most notably with minimum sample-size restrictions. Therefore, numerous tests and retest sessions were necessary to determine which results are more accurate and which are less satisfactory in terms of statistical rigor. Although this deficiency will be minimized when different tools become available in the

future or large competitive size of sample is achieved, this limitation has to be addressed when a major portion of the study has to negotiate better solutions under current circumstances of this study.

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APPENDIX

Appendix. 1. Definitions of Trust (from various studies)

Authors	Base Discipline	Definitions
Morgan and Hunt (1994)	Marketing	Trust is the perception of confidence in the exchange partner's integrity and reliability (p.23)
Crosby, Evans, and Cowles (1990)	Marketing	Customer's confident belief that the salesperson can be relied upon to behave in a manner that serves long-term customer interests.
Doney and Cannon (1997)	Marketing	The customer's perception of the salesperson's credibility (expectancy that the salesperson's statement can be relied on) and benevolence (extent to which the salesperson is interested in the customer's welfare).
Ganesan (1994)	Marketing	Willingness to rely on an exchange partner in whom one has confidence. Two components: (1) objective credibility, belief that the other has the expertise to perform the job, and (2) benevolence, belief that the other has motives beneficial to the target when new conditions arise for which a commitment was not made.
Hawes, Mast, and Swan (1989)	Marketing	Reliance upon information from another person about uncertain environment states and outcomes in a risky situation.
Legace and Gassenheimer (1991)	Marketing	An attitude that leads someone to commit to a possible loss contingent on the future behavior of the other person.
Schurr and Ozanne (1985)	Marketing	The belief that a party's word or promise is reliable and that a party will fulfill its obligations in an exchange relationship.
Swan et al. (1988)	Marketing	The emotion or effect of a buyer feeling secure or insecure about relying on the salesperson; and beliefs about the trustworthiness of a salesperson in a situation where the buyer faces some risk if the salesperson is not trustworthy.
Baier (1986)	Philosophy	Trust is a reliance on others' competence and willingness to look after, rather than harm, things one cares about which are entrusted to their care.
Barber (1983)	Sociology	Functions of trust are two: trust has the general function of social ordering, of providing cognitive and moral expectation maps for actors and systems as they continuously interact. A second and more dynamic function of trust, especially with regard to its meanings of expectations of technically competent performance and of fiduciary responsibility, is social control.
Bhattacharya, Devinney, and Pillutla (1998)	Management	Trust is an expectancy of positive (or nonnegative) outcomes that one can receive based on the expected action of another party in an interaction characterized by uncertainty (p.462) Trust exists in an uncertain and risky environment Trust reflects an aspect of predictability Trust exists in an environment of mutuality – that is it is situation and person specific (p.461-2)
Bok (1978)	Sociology	Trust is a social good. When it is destroyed, societies falter and collapse (p.25).
Coleman (1990)	Sociology	Trust includes voluntarily placing resources at the disposal of another or transferring control over resources to another (p.100).
Cook and Wall (1980)	Social Psychology	The extent to which one is willing to ascribe good intentions to and have confidence in the words and actions of other people
Das and Teng (1996)	Management	Trust is the degree to which the trustor holds a positive attitude toward the trustee's goodwill and reliability in a risky exchange situation.

Appendix. 1. Definitions of Trust (Continued)

Authors	Base Discipline	Definitions
Dasgupta (1988)	Economics	In defining trust, Dasgupta considers (1) the significance of others' unobservable actions for choosing one's own course of action (p.51), (2) one's expectations regarding others' choice of actions that have a bearing on one's own choice of action (p.53).
Deutsch (1962)	Experimental Psychology	In laboratory situations, trust was operationally defined as making a cooperative choice in the game (1960) Trust are actions that increase one's vulnerability to another (1962)
Gabarro (1978)	Organization Behavior	The level of openness that exists between two people, the degree to which on person feels assured that another will not take malevolent or arbitrary actions, and the extent to which one person can expected predictability in the other's behavior in terms of what is "normally" expected of a person acting in good faith.
Gambetta (1988)	Sociology	Trust (or, symmetrically, distrust) is a particular level of the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action, both before he can monitor such action (or independently of his capacity ever to be able to monitor it) and in a context in which it affects his own action. When we say we trust or someone or that someone is trustworthy, we implicitly mean that the probability that he will perform an action that is beneficial or at least not detrimental to us is high enough for us to consider engaging in some form of cooperation with him (p.217).
Govier (1997)	Sociology	Trust is fundamentally an attitude, based on beliefs and feelings and implying expectations and dispositions (p.4). Trust has the following features (p.6): 1. Expectations of benign, not harmful, behavior based on beliefs about the trusted person's motivation and competence 2. An attribution or assumption of general integrity on the part of the other, a sense that the trusted person is a good person 3. A willingness to rely or depend on the trusted person, an acceptance of risk and vulnerability 4. A general disposition to interpret the trusted person's actions favorably.
Heimer (1976)	Sociology	Trust is one way in which actors in social relationships can cope with uncertainty and vulnerability that exist in all such relationships (p.1-4).
Hobbes [1640]	Philosophy	Trust is a passion preceding from the belief of him from we accept or hope for God, so free from doubt that upon the same we pursue no other way to attain the same God: as distrust or diffidence is doubt that make him endeavor to provide himself by other means. And that this is the meaning of the words trust and distrust is manifest from this, which a man never provided himself by a second way. But when he mistrusted that the first will not hold. (1750, p.19) as referred to in Dunn (1988, p.74)
Holmes and Rempel (1989)	Social Psychology	People's abstract positive expectations that they can count on partners to care for them and be responsible to their needs, now and in the future (p.188).
Horsburgh (1960)	Philosophy	Horsburgh distinguishes trust in the sense of perfectly general confidence in another with trust in a person as regards specific acts. Therapeutic trust is a deliberate act of placing one's trust in someone known to be untrustworthy with the intent of bring out the best in him.

Appendix. 1. Definitions of Trust (Continued)

Authors	Base Discipline	Definitions
Hosmer (1995)	Sociology	Trust is the optimistic expectation by one person, group, or firm of the behavior of another person, group, or firm in a common endeavor or economic exchange, under conditions of vulnerability and dependent on the part of the trusting party, for the purpose of facilitating cooperation between both parties that will result in an ultimate joint gain but, given the lack of effective contractual, hierarchical, legal, or social enforcement methods, with reliance upon a voluntarily accepted duty by the trusted party to protect the rights and interests of all other engaged in the endeavor or exchange (p.32-3)
Humphrey and Schmitz (1998)	Economics	Expectations and mental states, willingness to expose oneself to the possibility of opportunistic behavior in the belief that this opportunity will not be availed of. (As referred to by Moore 1999, p.76)
Isaacs, Alexander, and Haggard (1967)	Psychoanalysis	The entire world appears differently to those who are able to trust, as opposed to those who are characteristically distrustful. Faith is undoubting, unconditional belief in which data for proof or refutation are ignored. Trust is different from faith because it connotes an affective attitude primarily directed outward, involving a sense of comfort, confidence, and reliance that certain acts and behavior will or will not occur. Trust need not imply gullibility. People can be perfectly sensitive to context and evidence and they may be thoughtful, reflective, and careful.
Lewicki and Bunker (1995)	Management	A state involving confident positive expectations about another's motives regarding oneself in situations of risk. These expectations may be based on the rewards or punishments that guide the other's behavior (i.e., calculus-based trust), the predictability of the other's behavior (i.e., knowledge-based trust), or a full internalization of the other's desires and intentions (i.e., identification-based trust).
Lewis and Weigert (1985)	Sociology	Trust is a chosen attitude, one that is to some degree warranted, based on definition on some relevant experience with the person or institution trusted. Trust is cognitive, having to do with evidence, interpretation, belief, and confidence. Trust is also emotional; we feel secure with, often close to, those we trust. Finally, trust has behavioral implications; we are more willing to co-operate and to rely on others when we trust.
Luhmann (1979)	Sociology	Trust, in the broadest sense of confidence in one's expectations, is a basic fact of social life The function of trust for individual and system actors is reduction of complexity in the social worlds they confront. It is essentially concerned with coping with uncertainty over time. Although personal trust fundamental in the family and with colleagues and friends, personal trust yields to system trust in the modern world. To live in a complex society without going mad, we must have trust in systems.
Luhmann (1988)	Sociology	Trust is an attitude which allows for risk-taking decisions
Mayer, Davis, and Schoorman (1995)	Management	The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party

Appendix. 1. Definitions of Trust (Continued)

Authors	Base Discipline	Definitions
McAllister (1995)	Management	Trust has both cognition- and affect-based dimensions. Cognition-based trust reflects technical competency and a fiduciary obligation to perform and is based on predictability, past behavior, dependability, and fairness/ It relies on a rational evaluation of another's ability to carry out obligations. Affect-based trust is rooted in emotional attachment and care and concern for the other party's welfare. There is an intrinsic value to the relationship itself and a belief that the other party feels the same way.
McKnight, Cummings, and Chervany (1998)	Management	Trust means that one believes in and is willing to depend on, another party. High-level trust can be broken into two constructs; (1) trusting intention – meaning that one is willing to depend on the other person in a given situation, and (2) trusting beliefs, meaning that one believes the other person is benevolent, competent, honest, and predictable in a situation (p.474).
Moore (1999)	Economics	Trust us a predisposition to act in a certain way. A trusting individual is one who makes a low personal investment in monitoring and enforcing the compliance of the individuals with whom she has made a compact from which she believes she will benefit (p.76).
Moorman, Zaltman, and Deshpande (1992)	Marketing	Trust is defined as a willingness to rely on an exchange partner in whom one has confidence
Nooteboom, Berger and Noorderhaven (1997)	Management	Intentional trust is defined as follows. X trusts Y to the extent that X chooses to cooperate with Y on the basis of a subjective probability that Y will choose not to employ opportunities for defection that X considers damaging, even if it is in the interest of Y to do so (p.315).
Pearce (1974)	Communication	An assumption that another person will not harm us, based on our perception of the other person as knowledgeable, competent, and well-intentioned towards us.
Rempel, Holmes, and Zanna (1985)	Social Psychology	First, trust is seen to evolve out of past experience and prior interaction: thus it develops as the relationship matures. Second, dispositional attributions are made to the partner, such that he or she is regarded as reliable, dependable, and concerned with providing expected rewards. Third, .. trust involves a willingness to put oneself at risk, be it through intimate disclosure, reliance on another's promises, sacrificing present rewards for future gains, and so on. Finally, trust is defined by the feelings of confidence and security in the caring responses of the partner and the strength of the relationship
Rotter (1967, 1980)	Social Psychology	"A generalized expectancy held by an individual or group that the work, promise, verbal, or written statement of another individual or group can be relied on" (1980, p.1) Willingness to Trust an Unknown Person. One's tendency to trust a generalized other – a person or group with whom one has not had a great deal of personal experience.
Rousseau, Denise, Sitkin, Burt, and Camerer (1998)	Management	"Trust is a psychological state comprising the intention to accept vulnerability based on positive expectations of the intentions or behaviors of another" (p.395).
Schlenker, Helm, and Tedeschi (1973)	Social Psychology	The need for trust arises in a risky situation; what happens to use depends on what another person does. We have some information from that other person that bears on our willingness to go ahead as though he or she will act appropriately.

Appendix. 1. Definitions of Trust (Continued)

Authors	Base Discipline	Definitions
Sellerberg (1982)	Sociology	Farmers from rural Sweden describe their pleasure in buying from dealers they knew personally and who knew them, even if the goods were not better or cheaper than what they could buy elsewhere. In urban life, confidence is rarely based on personal knowledge. Urban-dwellers base their attitude on consumer legislation, declarations about content on package, and a self-service system of merchandising that gives the impression nothing is hidden. Urban people, instead of trusting individuals, they trust institutions, expressing confidence in the operations of law and bureaucracy.
Zaltman and Moorman (1988)	Advertising	Trust is defined as interpersonal or inter-organizational state that reflects the extent to which the parties can predict one another's behavior; can depend on one another when it counts; and have faith that the other will continue to act in a responsive manner despite an uncertain future (p.17)
Zand (1972)	Management	Trust can be defined as increasing one's vulnerability to the risk of opportunistic behavior of one's transaction partner, whose behavior is not under one's control in a situation in which the costs of violating the trust are greater than the benefits of upholding the trust

(Adopted from Lee, 2002, p. 20-24)

Appendix. 2. Questionnaire for Phase. 1 & Phase. 2

Informed Consent Form

Thank you for participating in this study. The purpose of the study is to understand your relationship with the University of Tennessee, Knoxville.

Your participation is voluntary. You may decline to participate or change your mind later and stop participating without any penalty. If you have any questions regarding the consent form, please do not hesitate to ask the researcher. The information collected in your survey will be entirely anonymous. No one will be able to access to information except the researchers. There are no anticipated risks to the study.

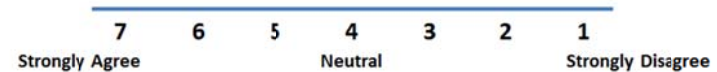
If you have any questions, you may ask them right now or later; if you have any questions after completing the questionnaire you may contact the research: Joosuk (Joseph) Park, 865-804-3592, jpark4@utk.edu. Your instructor can provide my contact information to you upon request. If you have any questions about your right as a participant, contact the Office of Research Compliance Office at 865-974-3466.

By continuing to the next page I am indicating I have read the consent form and am voluntarily agreeing to participate, and that I am at least 18 years of age.

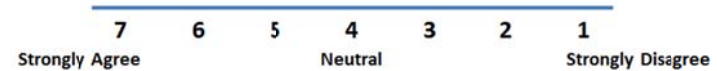
There are no right or wrong answers. We want your opinion.

Below are statements about *your relationship* with the University of Tennessee. Circle the response that indicates how much you agree or disagree with each statement.

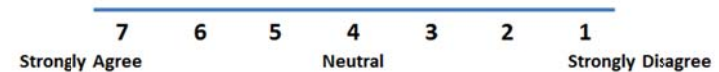
I agree with the values of the University of Tennessee.



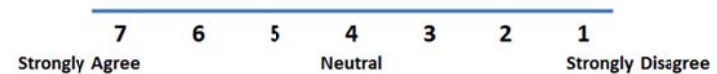
The University places importance on the things that matter.



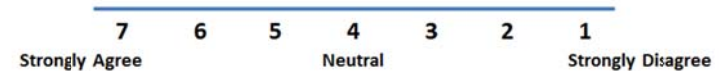
People like me are comfortable interacting with the university's faculty and other employees.



The values of the University are similar to mine.



The University connects with students' interests and wants.



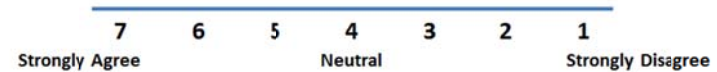
The University is sincerely concerned about students' problems and issues.



Faculty and other employees understand students' feelings, interests, wants, and needs.



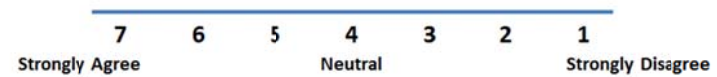
The University has a good reputation.



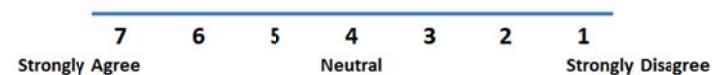
The University acts in a socially responsible way.



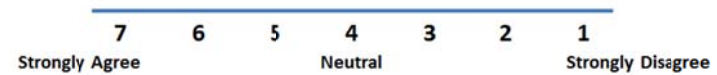
Faculty and other employees of the University of Tennessee have knowledge and expertise in their jobs.



Faculty and other employees of the University of Tennessee are skilled and well-informed.



The University approaches its goals with professionalism.



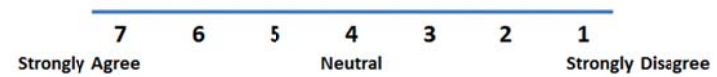
The University has the competence to accomplish its goals.



The University has technical skills to accomplish its goals.



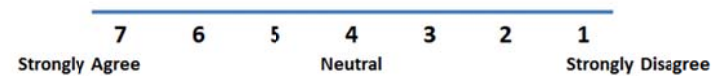
The University has programs and offices to handle students' issues.



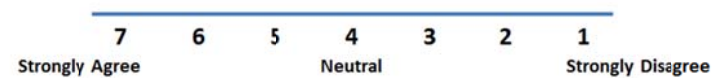
University policies are helpful to students.



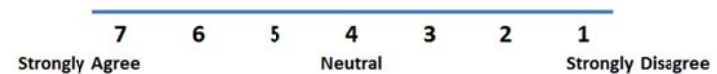
The University's personnel act in a way that is appropriate for a public institution.



Most of the University's faculty and other employees keep their promises.



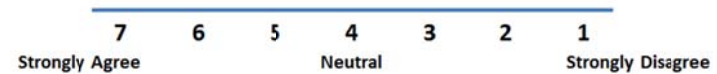
The University keeps its commitments.



The University of Tennessee does what it is supposed to do.



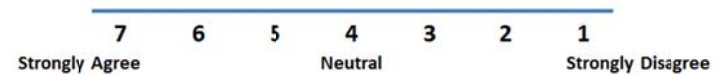
I can rely on university faculty and other employees to meet their obligations.



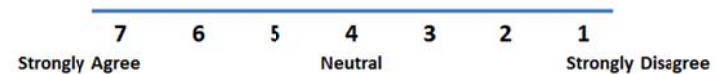
Faculty and other employees generally fulfill their duties.



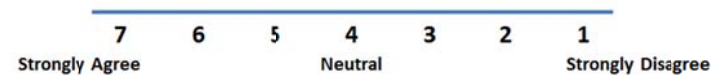
The University generally meets students' expectation of quality education.



I believe the University will give me a quality education.



The University faculty and other employees are honest when communicating with students.



Communication from the University is truthful.



The University complies with academic rules and regulations.



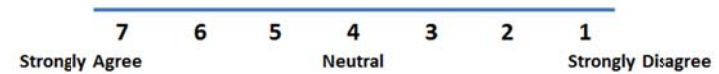
The University protects the interests of students.



The University applies its policies and regulations fairly.



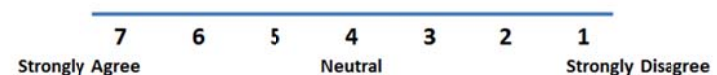
The University openly shares information with students.



The University freely provides information to the media.



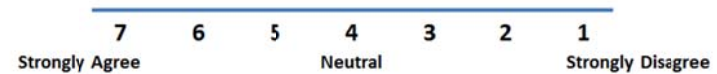
The University involves students in the decision making process.



The University's actions are consistent with its stated intentions.



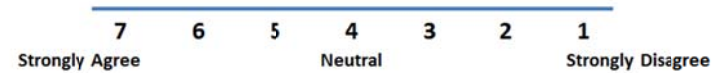
I can rely on statements coming from the University of Tennessee.



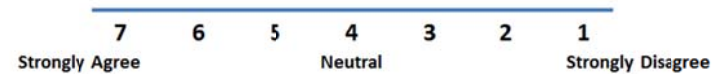
The University provides information I can rely on in uncertain situations.



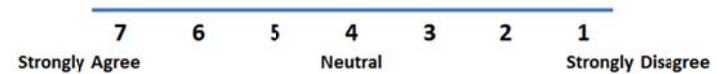
People at the University of Tennessee do their job well.



The University is successful at the things it does.



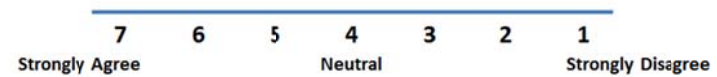
I know what to expect from the University of Tennessee.



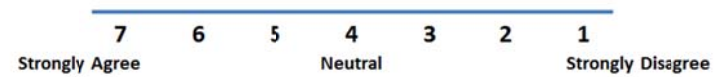
My experiences with the University have been positive.



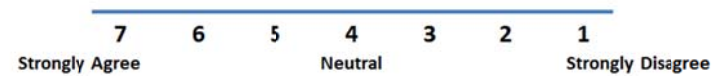
Overall, the University cares about students' well-being.



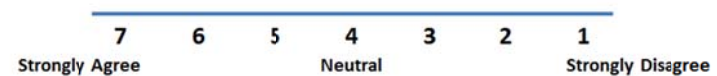
The University cares about students like me.



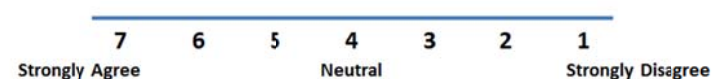
The University acts in best interests of students.



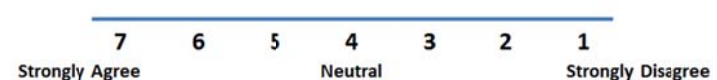
People at the University are friendly.



I can count on the University faculty and other employees to help address my academic problems.



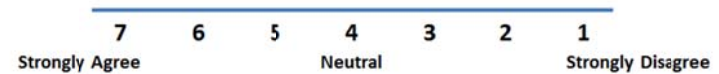
I can rely on the University to take actions when I express concerns.



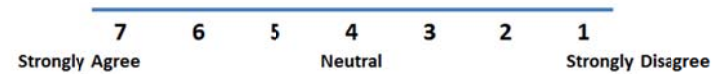
I trust the University of Tennessee.



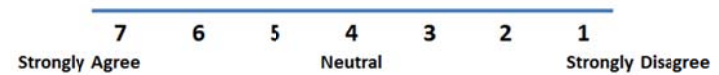
I have a good deal of faith in the University as a whole.



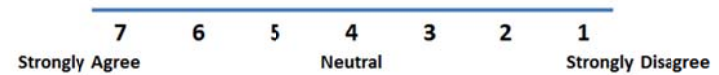
I believe the University is basically well-intended.



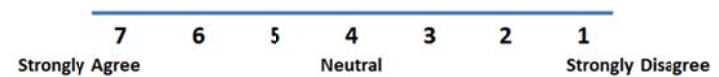
I tend to assume the best about the University of Tennessee.



I believe the University does not take advantage of me.



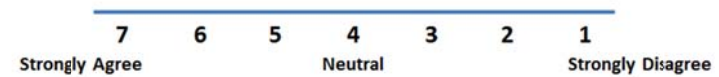
I can count on the University not to take advantage of students.



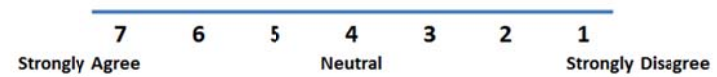
If I need help, the University will do its best to help me.



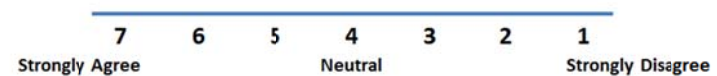
I believe the University looks out for what is important to me.



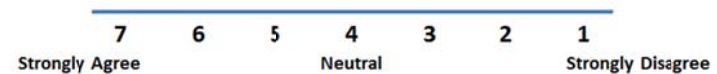
The University makes efforts to maintain its relationship with me.



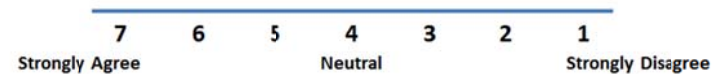
The University's faculty and other employees take time to listen to my problems and worries.



I feel I can take advice from people at the University of Tennessee.



The University has open communication with students.



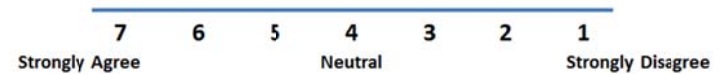
I am comfortable letting the University makes decisions about academic programs.



I think the University believes students' opinions are legitimate.



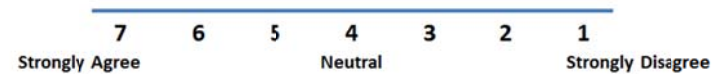
I am confident that information from the University is accurate.



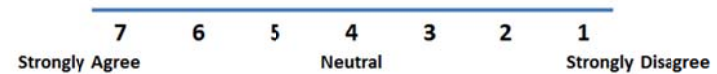
I can rely on the expertise of the University as a whole.



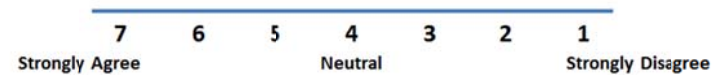
I am confident in accepting advice from university personnel.



I think the University's statements are generally acceptable.



I don't need to think twice about the messages the University sends.



If an important issue arise, I would feel comfortable relying on the University's information.



I expect that the University will fulfill its obligations.



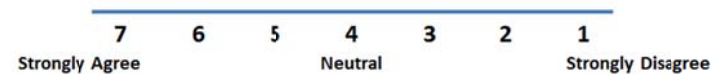
I know the University will do what it says it will.



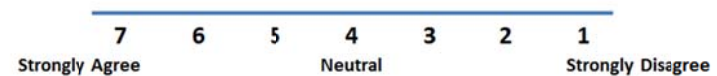
I feel the University has been a helpful organization.



I am satisfied with my relationship with the University of Tennessee.



For the most part, I am willingly to do what the University asks me to do.



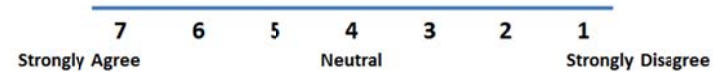
I am loyal to the University of Tennessee.



I want to maintain my relationship with the University of Tennessee after I graduate.



I feel personal attachment to the University of Tennessee.



Sometime in the future, I will donate money to the University of Tennessee.



Please complete the last section on the next page. Thank you. >>>

Q. What is your sex?

☐ Male ☐ Female

Q. In what year were you born? _____

Q. Please specify your race.

- ☐ American Indian (or Alaska Native)
 ☐ Asian
 ☐ Native Hawaiian or Other Pacific Islander
 ☐ White
 ☐ Hispanic
 ☐ Black or African American

Q. Activities Checklist: Please check each activity listed below which applies to you.

- | | |
|--|--|
| ☐ a. Currently live on campus | ☐ n. Member, university symphony or marching band |
| ☐ b. Currently live in a dorm | ☐ o. Member, Theater/ Thespian group/Acting Club |
| ☐ c. International student | ☐ p. Member, Scholastic/academic Honor society |
| ☐ d. Work full- or part-time | ☐ q. Belong to fraternity or sorority |
| ☐ e. Member of student government | ☐ r. Participate in cultural organization |
| ☐ f. Participate in intramural athletics | ☐ s. Participate in ethnic organization |
| ☐ g. Participate in varsity athletics | ☐ t. Participate in ROTC/military organiz. |
| ☐ h. On academic scholarship | ☐ u. Participate in other social organization. |
| ☐ i. On athletic scholarship | ☐ v. Participate in environmental organiz. |
| ☐ j. Participate in campus religious organiz. | ☐ w. Participate in hobby group/club |
| ☐ k. Member of residence hall staff | ☐ x. Participate in political organization |
| ☐ l. Member of media staff (e.g., Daily Beacon, yearbook, radio, t.v.) | |
| ☐ m. Participate in music groups, concert choir, university chorus, women's chorale, chamber singers, etc.) | |

Q. Regarding your own experience at this college, to what extent do you feel that each of the following is emphasized? Circle whichever number best reflects your view on the seven-point scale.

<u>Emphasis on developing academic and scholarly abilities.</u>	Strong emphasis 7654321 Weak emphasis
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<u>Emphasis on developing esthetic, expressive, and creative qualities.</u>	7 6 5 4 3 2 1 Strong emphasis Weak emphasis
<u>Emphasis on being critical and analytical.</u>	7 6 5 4 3 2 1 Strong emphasis Weak emphasis
<u>Emphasis on the development of vocational/occupational competence.</u>	7 6 5 4 3 2 1 Strong emphasis Weak emphasis
<u>Emphasis on the personal relevance and practical values of your courses.</u>	7 6 5 4 3 2 1 Strong emphasis Weak emphasis

Q. Why did you choose this college or university? Check as many reasons as apply in your case.

- ☐ a. Overall reputation and/or academic strength of the school.
- ☐ b. Emphasis on a particular field of study.
- ☐ c. Preference of parents.
- ☐ d. Affordability.
- ☐ e. Nearness to home town.
- ☐ f. Awarded a scholarship.
- ☐ g. Social climate on campus.
- ☐ h. Religious affiliation.
- ☐ i. Racial and/or ethnic diversity.
- ☐ j. Racial and/or ethnic emphasis, such as a predominately minority school.
- ☐ k. To be with friends or significant other.
- ☐ l. To raise my GPA, then transfer to another school.
- ☐ l. Other (Specify _____)

Q. Participation Scale: Please indicate how frequently you use, participate in, or attend the following.

a. Go to campus entertainment/events (movies, plays, concerts)	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always
b. Attend special issue lectures/ guest speakers.	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always
c. Do charity, fund-raising, or volunteer work.	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always
d. Go to parties or social get-togethers	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always
e. Attend varsity athletic events 'at home.'	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always
f. Attend varsity athletic events 'away.'	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always
g. Meet with an instructor/professor outside of class.	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always
h. Meet with students outside of class to discuss/ study notes.	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always
i. Vote in student elections.	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always
j. Speak with administration about your concerns.	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always
k. Exercise or play sports with other students.	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always
l. Pray or engage in spiritual activities with other students.	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always
m. Watch television	1 2 3 4 5 6 7 Almost Never Occasionally Almost Always

VITA

Joosuk(Joseph) Park was born in Seoul, Korea in January, 1971 as the oldest son to Youngsam Park and Kisun Cho. He studied Advertising and Public Relations and Public Relations during his undergraduate and master programs at Chung-Ang University (Seoul, Korea) and the University of Tennessee, Knoxville. In September 2007, he started his Ph.D. program in public relation at the University of Tennessee, Knoxville and received his Ph.D. degree (Ph.D. in Communication and Information) in August 2012. He has published an article in peer-reviewed journal, *Public Relations Review*.