Buyer's Trust of the Salesperson: An Item-Level Meta-Analysis

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Abstract:

The issue of trust is an important one in the marketing literature. To assess the nomological validity of trust-related measures, this research uses an item-level measurement meta-analysis based on correlations from 32 studies that measure trust-related constructs in the context of a buyer's assessments of sellers. Analysis reveals that 16-item measures converge into three constructs that are indicative of the seller's credibility, expertise, and compatibility and three items each that are indicative of trust and trustworthiness. In a structural equation model based on the meta-analysis, a seller's characteristics are predictive of trust and trustworthiness.

Keywords: salespeople | seller trustworthiness | buyer trust

Article:

For over a decade, trust has been a focal construct in the marketing literature. Studies have linked trust to important constructs such as cooperation and enhanced channel performance (Anderson and Narus 1990), commitment (Geyskens, Steenkamp, and Kumar 1999), satisfaction (Anselmi and Zemanek 1997), and long-term orientation (Ganesan 1994). In consumer settings, trust influences purchase intention and loyalty (Kennedy, Ferrell, and LeClair 2001; Sirdeshmukh, Singh, and Sabol 2002). This breadth of research indicates that trust is vital across an array of marketing relationships. However, this multiplicity of applications has resulted in the development of a variety of trust measures that on occasion have been imperfectly applied across the range of marketing relationships. This has affected our understanding of how best to measure this important construct. One important issue hindering our understanding of trust involves the need for parsimonious and precise measures of a buyer's trust of the seller.

One possible reason for this measurement problem is the failure of existing trust literature to distinguish between measuring (1) a seller's intrinsic characteristics, (2) assessments of trustworthiness, and (3) a buyer's trust of that seller. These distinctions become critical when

considering the whole process of trust formation. If we are measuring seller qualities, some characteristics may not be important in particular marketplace situations. Unfortunately, the literature has failed to clearly make these distinctions, leaving researchers with numerous trait-based indicators purporting to measure trust. Fortunately, a relatively recent technique, the item-level meta-analytic measurement model (Klein et al. 2001), can deal with some error associated with mistaken measurement application through aggregation of individual item correlations.

This study aims to extend our understanding of a buyer's trust of a seller by aggregating correlations of individual measures of trust-related constructs from a common context via an item-level meta-analysis. This item-level meta-analysis relies on existing empirical measures from the marketing literature relating to the trust/trust formation domain. Study results should identify trust-related items that consistently seem to address that construct—hence the development of a common and consistent measure of trust.

A second contribution of the study involves providing a synthesis of the existing literature—allowing an examination of the three-part theoretical framework of trust relationships discussed by Hardin (2002). The three parts being that a buyer (part A) trusts a seller (part B) to do some specific thing (part C). For instance, a hypothetical buyer (as part A) may trust a bank (part B) to protect their savings (part C) but not trust that bank with babysitting their child. Our buyer may also trust the salesperson's word for a copier but not trust them to safeguard their life's savings. Reviewing existing literature through the three-part relationship framework suggests our understanding of how to measure trust may be incomplete. Some common measures of trust may relate to only one part of the three-way relationship.

Beyond the three-part relationship of trust, there are questions involving trust formation processes. Trust is an expectation by the buyer that a seller will engage in actions supporting the buyer's interests in that setting (Hardin 2002; Morgan and Hunt 1994). One way a buyer reaches this conclusion is through assessment of seller qualities such as consistency, competence, honesty, fairness, responsibility, and helpfulness—suggesting that these qualities are antecedents to an overall assessment of trustworthiness (Doney and Cannon 1997). This study proposes and tests several attributes as predictive of a buyer's assessment of seller trustworthiness. Trustworthiness is modeled as immediately antecedent to trust. It is likely that after aggregation of study effects, a refined indication of population correlations will indicate some measures should be more aptly viewed as indicators of the seller's qualities, as indicative of trustworthiness assessments, or as measures of trust.

THEORETICAL FRAMEWORK AND HYPOTHESES

Trust has been investigated in many exchange settings (Lewicki, McAllister, and Bies 1998). Each research stream attempts to add some unique perspective about trust (Mayer, Davis, and Schoorman 1995). Although some maintain that certain components of the structure of trust are consistently emerging across disciplines (Rousseau et al. 1998), others suggest the multitude of trust conceptualizations led the literature to a "conceptual morass" (McKnight, Choudhury, and Kacmar 2002, p. 335). Despite the variation that inherently develops from this assortment of frameworks and definitions, it is likely that the imprecision of trust-related measures can be accounted for by constraining the collection of study effects to a well-defined context. In

marketing, one such setting is the buyers' appraisals of sellers in either a business-to-consumer (B2C) or business-to-business (B2B) contexts as well as the target of trust being an individual or a selling institution.

In purchase settings, a buyer risks a valued economic resource in a sales exchange. They complete the exchange anticipating the seller will behave in a manner that deliberately considers and advances the buyer's interests (Sheppard and Sherman 1998; Zucker 1986). According to Hardin (2002), this expectation is based on the buyer's evaluation of the seller's interests and motivations particular to the exchange. Trust formation must involve an appraisal of the seller's characteristics and a judgment about that seller's intentions. The process involves the buyer assessing a seller's qualities that are likely indicative of the seller's trustworthiness. However, trustworthiness is not sufficient as the buyer must also conclude the seller's interests incorporate the intentional inclusion of the buyer's interests in the same exchange.

Thus, for trust to occur in any exchange, a buyer must conclude the seller deliberately considers and acts to some degree in support of the buyer's interest in the relationship. This criterion does not preclude that the seller's intentions may also include interests that differ from the buyer's. The range of possible conditions also includes that the seller's interests may be in complete congruence with the buyer's. The seller may even have an interest only in the relationship, placing a premium on the buyer's welfare to maintain the relationship. The buyer can trust the seller when the seller's interests involve any of these conditions. Trust cannot occur when the buyer concludes that the seller has no deliberate interest in the buyer's interests.

This encapsulated interest view of trust extends frameworks by explicitly incorporating all of the elements of trust formation. For instance, judgments about a seller's benevolent intentions (a construct often mentioned as an integral indicator of trust; Ganesan 1994) develop after the buyer gains knowledge about the seller's trustworthiness (Hardin 2002). Doney and Cannon (1997) indicate that buyer assessments about a seller's trustworthiness begin with perceptions about the seller's characteristics. Thus, the encapsulated interest's view of trust formation adds to our understanding by clarifying the role of specific seller characteristics in trust formation.

As outlined in Figure 1, a buyer assesses seller characteristics deemed relevant in discerning the seller's interest in that exchange. The seller is judged trustworthy when the buyer classifies that specific exchange partner into the "in group" of trustworthy people or firms for that context. Buyers use the social categorization and comparison process (Elsbach 2004) to reach that conclusion. Doney and Cannon (1997) suggest a buyer also may conduct a cost–benefit analysis to help assess seller trustworthiness, though Hardin (2002) and Williamson (1993) do not believe this risk-reducing strategy is related to trust unless it incorporates a buyer's interests into the calculation. Regardless of the process, the buyer views trustworthy sellers as having the potential to act in the buyer's interests. The final step in trust formation is for the buyer to judge that a seller in this specific context can and will act on this potential. The trust formation process is then complete with the buyer trusting that this seller will act in a way that advances the buyer's interest in this specific exchange through deliberate intentions.

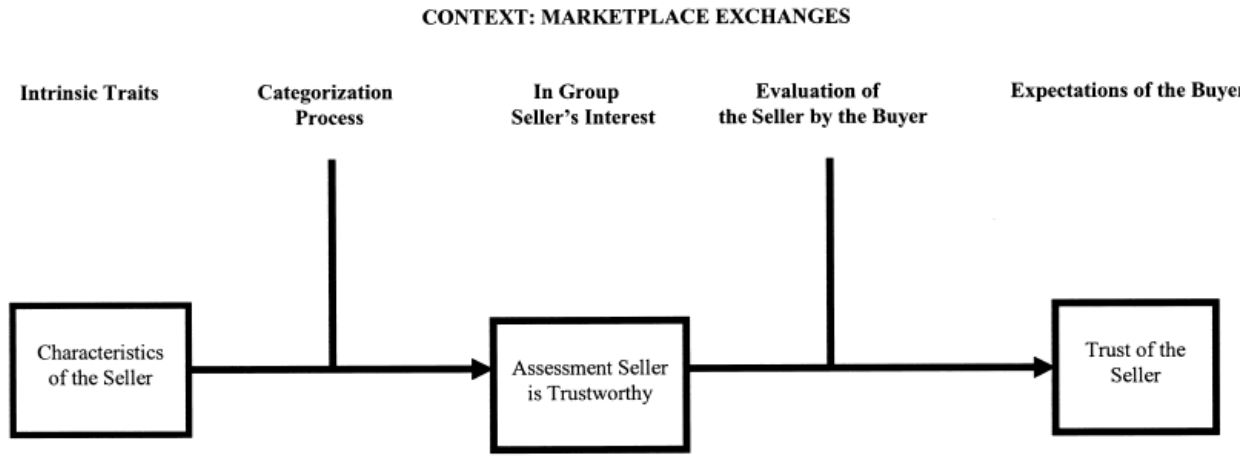

Figure 1. Trust Formation Process Conceptual Model

Beyond the framework shown in Figure 1 are the demonstrations of trust. These behaviors place some valued resource into the control of the person being trusted—thus incurring the risk of loss (Smith and Barclay 1997). Absence of the behavior does not indicate the absence of trust. Conversely, the presence of the risk-taking behavior is not sufficient to indicate trust. Finally, the cognitive basis of these expectancies about the seller corresponds well with previous conceptualizations of the buyer's evaluative process concerning a seller's qualities in anticipation of this uncertain exchange (Bhattacharya, Devinney, and Pittutla 1998).

In empirical studies of buyers and sellers in the marketplace, it is possible that many of the existent measures meant only to indicate trust are likely to additionally or separately describe either a characteristic of the seller, the seller's trustworthiness, or the buyer's trust. Because of the close relationships between these trust-related constructs, it is also likely that in past empirical studies, some measures demonstrated correspondence or even statistical significance as an indicator of a construct to which it is not really related. For example, measures of honesty that may more precisely indicate an intrinsic quality of the seller have also been used as trust indicators. However, problems have arisen in the past with honesty as a measure of trust, finding conflicting results regarding salesperson honesty as an indicator of trust (cf. Jap 2001; Plank, Reid, and Pullins 1999).

With the rapid growth and maturation of the trust literature, the field has seen a plethora of measures introduced to the literature. Finding a method to parse through these item measures and develop some empirical evidence in support of their appropriate application can be problematic. The item-level meta-analytic technique is a method to evaluate existing measures and test their appropriateness as indicators of certain constructs. As with a standard meta-analysis, this technique aggregates outcomes from existing studies, reducing spurious or random effects. To achieve this particular benefit, the item-level meta-analysis looks to aggregate only those study effects from a clearly defined context (Klein et al. 2001). It appears that buyer's appraisals of sellers provide a rich context for investigating the three-part relationship of trust using this item-level analysis technique. This context matches the three-part relationship with a buyer and a seller as the two parties and the advancement of a buyer's value by specified seller actions as the third part.

Researchers have developed numerous measures of trust, trustworthiness, and seller attributes that may influence trust. In addition to honesty, this literature suggests that trust is indicated by benevolence (Kumar, Scheer, and Steenkamp 1995) and credibility (Ganesan 1994), as well as expertise, likability, and similarity (Swan, Bowers, and Richardson 1999). Other authors view these and other measures as more indicative of the seller's trustworthy characteristics. Some of these characteristics include competence (Jap 2001), discretion (Lagace, Dahlstrom, and Gassenheimer 1991), and promise keeping (Crosby, Evans, and Cowles 1990). As noted earlier, some of these measures have been used to indicate multiple trust-related constructs. These include but are not limited to benevolence/intentionality, dependability/reliability, and openness/honesty.

A few of these categories or groups have similar domains and conceptualizations but different labels, such as capability (Plank, Reid, and Pullins 1999) and competence (Henthorne, LaTour, and Williams 1992). Two attributes—likability/ similarity (Ramsey and Sohi 1997) and reputation (Doney and Cannon 1997)—are not consistently mentioned as indicative of both the salesperson and selling organization. The likability/similarity construct is usually associated with interpersonal trust of the salesperson, whereas selling firm reputation is commonly mentioned in discussions about the organization. In turn, each of these attributes has several measures that are reflective of these traits.

The close correspondence of variables involved in trust formation may have led to varying applications of measures. There is clearly empirical evidence, as well as face validity, that the seller's dependability/reliability is related to a buyer's trust (Jap 2001). However, when viewed as part of the trust formation process, measures of reliability/dependability can have varying conceptualizations.

For example, dependability/reliability in a sales context implies consistency in a salesperson's behavior. Often the implication is toward a normative behavior such as accuracy. However, a buyer's interests may be enhanced by a salesperson who consistently and incorrectly underprices a transaction. Although the giving of an incorrect price may occur regularly, one buyer may trust this ineptitude, believing it consistently serves their interest but another buyer may distrust such behavior because it reflects poorly on the salesperson's abilities and may indicate other undiscovered mistakes. This is just one example of how a measure regarding the seller can have varying implications for buyer trust. This lack of distinction between trustworthy characteristics and trust seems particularly problematic when moving from a positivist view of the role of trust to a normative position of how to develop trust.

In the context of buyer appraisals of sellers, many common measurement items were found. Close examination of the wording of many items in this literature strongly indicates an emphasis on seller characteristics rather than on a buyer's trust. It appears researchers recognized that trust in some part involves the buyer deciding if sellers have attributes that qualify them as likely to have interests that "encapsulate" the buyer's interests. Although many existing measures seem to indicate seller qualities, others seem to indicate assessments of the more global constructs of trustworthiness or trust. Trustworthiness is typically seen as an antecedent to trust (Hardin 2002). The wordings of these items and the articles that served as their source are denoted in Table 1.

Table 1. Literature-Based Items Used as Trust Indicators

Item Wording	Source
A. Seller places customer's interests first.*	Crosby, Evans, and Cowles (1990)
B. Seller has future positive intentions.*	Kennedy, Ferrell, and LeClair (2001)
C. Seller uses best judgment.*	Kumar, Scheer, and Steenkamp (1995)
D. Seller keeps promises.*	Kumar, Scheer, and Steenkamp (1995)
E. Seller is reliable.*	Kennedy, Ferrell, and LeClair (2001)
F. Seller is dependable.*	Kumar, Scheer, and Steenkamp (1995)
G. Can rely on seller's promises.*	Crosby, Evans, and Cowles (1990)
H. Seller is honest.*	Crosby, Evans, and Cowles (1990)
I. Seller is not candid.*	Kumar, Scheer, and Steenkamp (1995)
J. Seller is capable.*	Boles, Barksdale, and Johnson (1996)
K. Seller is not deceptive.	Kumar, Scheer, and Steenkamp (1995)
L. Seller bends facts.	Crosby, Evans, and Cowles (1990)
M. Seller makes false claims.	Boles, Barksdale, and Johnson (1996)
N. Seller has product knowledge.*	Boles, Barksdale, and Johnson (1996)
O. Seller is qualified.*	Boles, Barksdale, and Johnson (1996)
P. Seller is an expert.*	Boles, Barksdale, and Johnson (1996)
Q. Seller is competent.*	Boles, Barksdale, and Johnson (1996)
R. Seller is friendly.*	Ramsey and Sohi (1997)
S. Seller is approachable.*	Ramsey and Sohi (1997)
T. Seller is likable.*	Hawes, Mast, and Swan (1989)
U. Seller is reputable.*	Plank, Reid, and Pullins (1999)
V. Seller is respectable.*	Plank, Reid, and Pullins (1999)
W. Seller is trustworthy.*	Crosby, Evans, and Cowles (1990)
X. Seller is sincere.*	Crosby, Evans, and Cowles (1990)
Y. Seller of trust is fair.*	Andaleeb (1996)
Z. Seller makes me worry.	Crosby, Evans, and Cowles (1990)

Notes: Letter designations correspond to correlation matrix in Table 3. * Designates an item that remained after the meta-analysis (see Figure 2).

Given the findings of previous studies of trust in marketing, we explicitly suggest that these items will demonstrate convergence to only one construct in a trust formation framework. However, these previous outcomes do not imply that within the specific context of buyers' appraisals of sellers, these items will consistently warrant inclusion in a domain of trust measures. Within the domain of trust-related measures, it is anticipated that each indicator or measure will have a significant relationship to the global construct of trust formation. Although representing a variety of contexts, across various periods, and using various combinations of measures, valid indicators should have empirical evidence of their appropriateness as a measure of some aspect of trust formation (Nunnally and Bernstein 1994). The fit of all the indicators to a measurement model should indicate an internally consistent nomological measurement network.

> *Hypothesis 1: A measurement model of literature-based indicators of trust-related qualities will demonstrate internal consistency with significant loadings on a single construct.*

It is suggested that this evidence of convergent validity does not preclude the subsequent divergence of the various trust-related constructs in the proposed model. Instead, it is likely some indicators are measures of seller characteristics, others measure buyer perceptions of seller trustworthiness, and some indicate a buyer's trust of the salesperson. Positive evaluations of all

characteristics deemed important in this setting will increase support for a decision that the seller is trustworthy or untrustworthy and the outcome of this decision may lead to trust.

Smith and Barclay (1997) concluded that there are multiple dimensions of trustworthiness—implying there may be a global construct of trustworthiness reducible into various components (Hardin 2002). Trustworthiness may be indicated by global assessments of a seller's intrinsic traits. Trustworthiness, then, is a buyer judgment that this particular seller possesses attributes encapsulating the buyer's interests in a specific exchange. Indications of trustworthiness are not likely to be grounded in specific behavioral characteristics such as promise keeping or truth telling. Instead, buyers are assessing seller characteristics as they relate to this potential.

A seller's fairness is likely indicative of trustworthiness. A seller assessed as fair has a greater likelihood of having compatible views about shared interests. The seller's sincerity makes him or her trustworthy and viewed as genuinely concerned with their exchange partner's interests. A buyer can view a seller as trustworthy because of the seller's intrinsic motivation to be fair and sincere in dealings with others. The seller knows that such behavior will likely result in continued interaction. The sum of benefits from many interactions outweighs the one-time gain of acting opportunistically. This view of trustworthiness suggests that there are specific measures that are reflective of trustworthiness categorization.

> *Hypothesis 2: Indicators of trustworthiness, sincerity, and fairness will significantly load on the construct of trustworthiness.*

In the encapsulated interest framework, a seller can be classified as trustworthy if he or she has characteristics that potentially advance the buyer's interests. As noted earlier, evidence exists that buyers conclude a seller is trustworthy after congruently assessing the seller on various characteristics such as compatibility, credibility, and expertise. Smith and Barclay (1997) conceptualized many of these traits as dimensions of trustworthiness. In the sales literature, there is no accepted conceptualization concerning how these traits may eventually lead to trust. Within these frameworks exists a variety of measures that have not been applied universally to any specific construct.

One way to map conceptually these measures onto specific constructs is to examine how these traits enhance buyer's judgments about whether a seller intends to enhance the buyer's interests in the exchange. Buyers attempt to discern the seller's motivations and interests. Assessments of compatibility are buyer's judgments that the seller's motivations to advance the seller's interests (as they encapsulate the buyer's interests) arise from a common and compatible belief system. Information most likely to help a buyer reach conclusions about a seller's intentions includes those actions and expressions congruent with the buyer's typical actions and words. A buyer likely evaluates these expressions and judges them as consistent or inconsistent with their experience in that context. It is in the interest of the sellers to portray accurately their real views, as future interactions will likely expose inaccuracies. Capturing this trait are measures of likability/similarity (Plank, Reid, and Pullins 1999) and reputation (Doney and Cannon 1997). We suggest that these measures indicate buyer's evaluations of congruence of motivations with those of the seller's.

Hypothesis 3: Indicators of likability/similarity and reputation qualities will significantly load on a construct of compatibility, and that construct will, in turn, positively predict trustworthiness.

In addition to viewing the seller as having compatible interests, an assessment of the seller's credibility likely is made. Credibility has seen extensive use in the sales literature and is typically indicated by a seller's honesty, candor, and reliability. In the "encapsulate interest" framework, seller's credibility is a buyer's assessment that this seller can reduce uncertainty in exchange through consistent reciprocal response. The buyer can rely on the seller's actions and words. A trustworthy seller is not only truthful but does not withhold information that might increase uncertainty. Expressing false or inaccurate information is detrimental to the continuance of a relationship and would lead to lower seller rewards. Thus, it is hypothesized that

Hypothesis 4: Indicators of candor will significantly load on a construct of credibility and that construct will, in turn, positively predict trustworthiness.

Another characteristic of the seller develops out of the necessity that some resource must be at risk for trust to occur. A buyer trusts that the seller will perform an activity advancing the buyer's interests in the at-risk resource. In other words, the seller's expertise advances the buyer's well-being. The seller may independently be judged as having characteristics such as credibility and compatibility that suggest congruent interest with the buyer; but if that seller does not possess the ability (Swan et al. 1988) or competence (Jap 2001) to fulfill the buyer's interests, he or she is not likely to be trusted. A determination of expertise develops out of the buyer's perceptions that a seller's context-specific knowledge and capability to use that knowledge will advance both parties' interests. It is the congruence of the context-specific expertise to the resource at risk that drives the impact of this construct upon trust. In the proposed trust formation model, this perceived expertise does not directly influence trustworthiness but is a characteristic that directly influences a buyer's trust.

Hypothesis 5: Indicators of product knowledge, capability, qualifications, expertise, and competence will significantly load on a construct of expertise and that construct will, in turn, positively predict trust.

The concepts of benevolent intentions and benevolence have seen varied applications in the literature. Benevolent intentions are often linked with measures of a buyer's expectation about a seller's specific intentions (Kumar, Scheer, and Steenkamp 1995). This conceptualization of benevolent intentions closely mirrors Hardin's (2002) "encapsulated interests." Benevolence as a seller characteristic has also seen support in the literature. In this conceptualization, the seller has the intrinsic trait of treating others benignly (Morgan and Hunt 1994). With this definition, as with their other trustworthiness qualities, the buyer will judge those sellers that possess these qualities as belonging to the trustworthy group.

Resolving these disparate conceptualizations (benevolence versus benevolent intentions) into an explanatory framework of trust formation is a challenge. As stated above and depicted in Figure 2, the concept of benevolent intentions seems theoretically to conform closely to Hardin's (2002) concept of trust. A buyer judges whether a seller's intentions to some degree deliberately

includes the buyer's interests and whether the seller will intentionally take positive action to improve the buyer's interests. This judgment develops out of assessments of the seller's general trustworthiness along with decisions about the seller's capability to advance the buyer's interest. Thus, in this conceptualization, existing measures of benevolent intentions may be uniquely indicative of a buyer's trust.

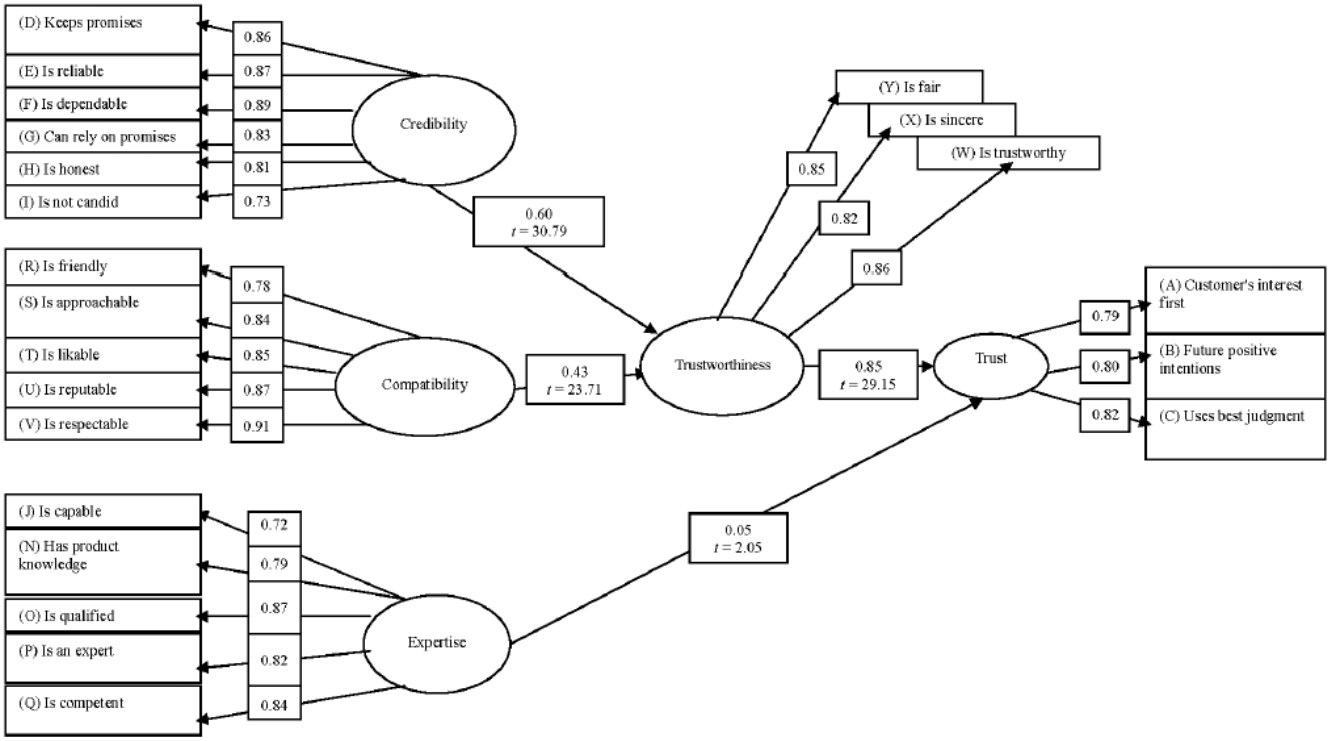

Figure 2. Structural Equation Model

An alternative framework (Figure 3) based on intrinsic benevolence has this trait in the same category as credibility, compatibility, expertise. Benevolence as a trait intrinsic to the seller has been indicated by measures reflective of the buyer's judgments about the seller's benevolence. In the literature, the exact same indicators as the trust indicators of Figure 2 have been used to measure benevolence. In this framework, the seller's benevolence would positively influence the buyer's appraisal of the seller's trustworthiness. Although each model is possible, the appropriateness of the Figure 2 framework is likely indicated by testing the following hypothesis:

> *Hypothesis 6: Indicators of intentions will significantly load on the construct of trust of the seller, and this trust is positively influenced by indications of trustworthiness of the seller.*

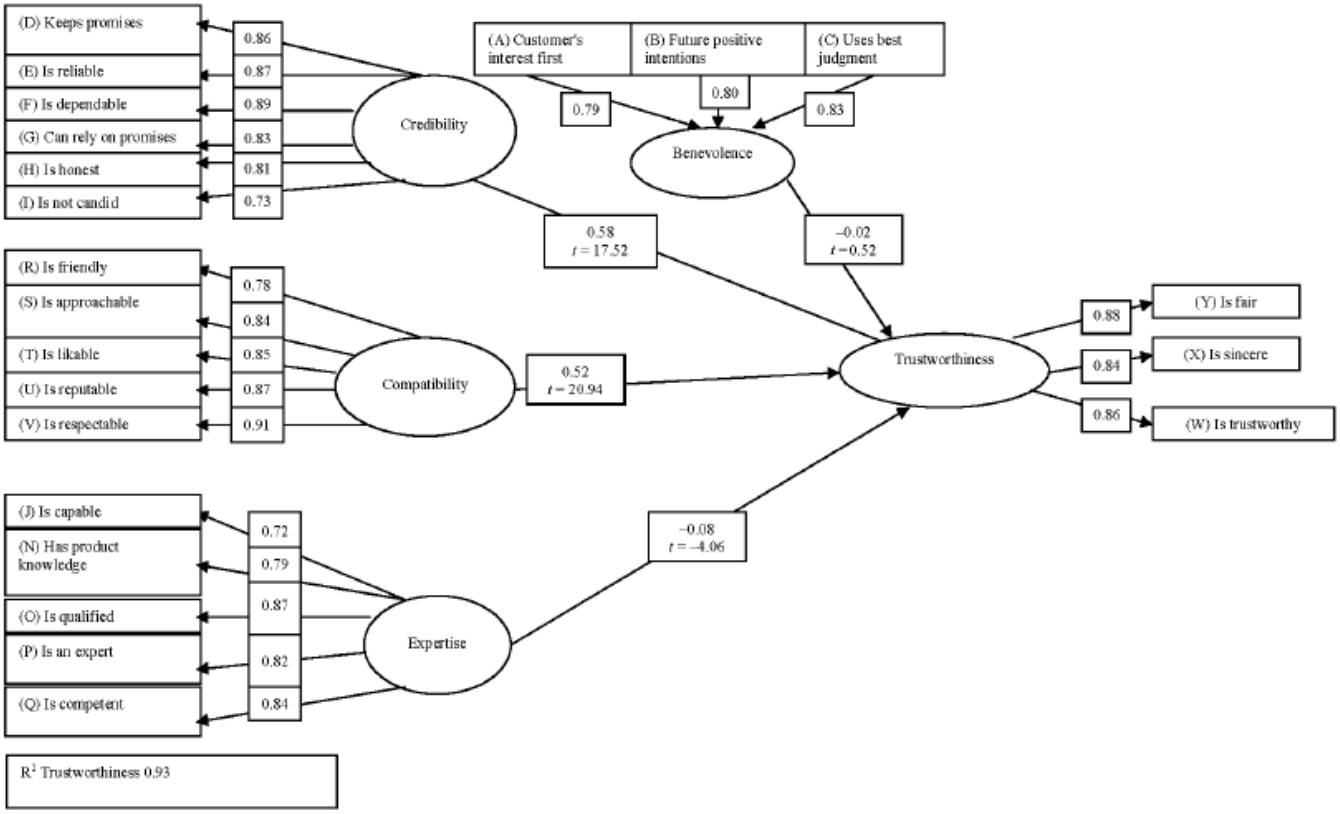

Figure 3. Alternative Structural Equation Model

Targets of Trust

Much of the marketing literature relies on the relational conceptualization of trust (Rousseau et al. 1998), presuming repeated interactions. These interactions may be with the salesperson, firm, different salespeople from the same firm, and possibly the same salesperson employed by different firms over time. In the marketing literature, measures indicative of the trustworthiness of targets of trust have generally been limited to the salesperson (Swan, Bowers, and Richardson 1999), a salesperson as a firm's representative (Ganesan 1994), or the selling firm (Plank, Reid, and Pullins 1999). Whereas some studies have examined other boundary-spanning positions such as service workers (Sirdeshmukh, Singh, and Sabol 2002), most research has focused on salespeople. These approaches suggest the target of trust can be either the salesperson or selling firm. Conceptually, different traits may influence trustworthiness categorization (interpersonal for salespeople, institutional for the firm) because buyer assessments are based on traits unique to each seller (Brashear et al. 2003).

Thus, salesperson-specific qualities are typically used to categorize under the broad heading of interpersonal trust. These qualities may differ as the buyer attempts to assess the institution. They possibly differ because in institutional trust, it may be difficult to presume homogeneity of intentions or motives across members of the selling organization (Lewicki, McAllister, and Bies 1998). This distinction emphasizes that the selling firm with its multiple individual components is a complex entity to assess. Although much of the literature presumes that a buyer makes a

decision about the selling firm's overall trustworthiness, it is not clear when the person and firm are separate assessments.

Evaluations of selling firms have the potential for anthropomorphism or ascribing human traits to institutions. Previous research indicates that institutional trustworthiness and interpersonal trustworthiness may use similar traits in the categorization process (Doney and Cannon 1997; Elsbach 2004). We suggest that the overall model of assessments of seller characteristics influencing trustworthiness classification also holds across the broad context of interorganizational market interactions. Only the indicators of these characteristics are likely to vary across context. As evaluators judge a seller's compatibility, they may emphasize friendliness in interpersonal exchanges versus reputation in an institutional context. We hypothesize:

> *Hypothesis 7a: The structural model of trust formation will be significantly different between the targets of interpersonal trustworthiness and institutional trustworthiness at the item measure level.*
>
> *Hypothesis 7b: The structural model of trust formation will be significantly different between the measures of consumer respondents and organizational respondents at the item measure level.*

ANALYTICAL APPROACH: ITEM-LEVEL META-ANALYS IS

To develop a measure of the indicators of trust formation, an item-level analysis is used as an extension of the more traditional construct-level aggregation of effect sizes (Klein et al. 2001). This meta-analytic approach allows for the accumulation of average correlations across many data sets, which, in turn, can be incorporated into a correlation matrix for further analysis in a confirmatory factor analysis (CFA) by means of Anderson and Gerbing's (1988) heuristics for examining psychometric properties of scales as well as a structural model to test the proposed relationships. This meta-analysis accumulates trust-related measures from a broad spectrum of studies where a buyer is assessing and ultimately trusting a seller (either a person or institution).

Meta-Analytic Literature Search

As the first step in an item-level meta-analysis, we identified the buyer appraising seller context as the target area from which to gather correlations. Within this defined domain, a balance is needed between obtaining sufficient study measures to make generalizations about the population correlations and ensuring the selected measurement items pertain to a homogeneous domain. This initial review (see Table 1) of the published peer-reviewed literature uncovered 26 items that potentially measure trust, trustworthiness, or indicate one of the relevant attributes of the seller in a market exchange. Although a number of important studies about trust exist beyond this context (notably, Moorman, Deshpande, and Zaltman 1993; Moorman, Zaltman, and Deshpande 1992), it is important to not confound the attributes predictive of trust by including too broad of a context.

Table 2. Empirical Studies from Literature Search and Responses to Request for Item-Level Correlations

Contact Author/Source	Publication	Title	Literature Search Results	Target of Trust	Setting
Syed Saad Andaleeb (Andaleeb 1996)	*Journal of Retailing*	An Experimental Investigation of Satisfaction and Commitment in Marketing Channels: The Role of Trust and Dependence	21 correlations provided	Institutional	B2B
Syed Saad Andaleeb (Andaleeb and Anwar 1998)	*Journal of International Marketing*	Factors Influencing Customer Trust in Salespersons in a Developing Country	Data lost		
James C. Anderson (Anderson and Narus 1990)	*Journal of Marketing*	A Model of Distributor Firm and Manufacturer Firm Working Partnerships	Data lost		
Dwayne Ball (Ball et al. 2004)	*European Journal of Marketing*	The Role of Communication and Trust in Explaining Customer Loyalty	NR		
James S. Boles (Boles, Barksdale, and Johnson 1996)	*Journal of Business and Industrial Marketing*	What National Account Decision Makers Would Tell Salespeople About Building Relationships	105 correlations provided	Interpersonal	B2B
James S. Boles (Boles, Barksdale, and Johnson 1997)	*Journal of Business and Industrial Marketing*	Business Relationships: An Examination of the Effects of Buyer–Salesperson Relationships on Customer Retention and Willingness to Refer and Recommend	60 correlations provided	Interpersonal	B2B
Paul Busch (Busch and Wilson 1976)	*Journal of Marketing Research*	An Experimental Analysis of a Salesman's Expert and Referent Bases of Social Power in the Buyer–Seller Dyad	NR		
Randy Clark (Clark 2003)	Ph.D. dissertation	A Comparison of Trust Across Relational Form as Established by Dependence Level	36 correlations provided	Institutional	B2B
Don Cook (Cook 1997)	Ph.D. dissertation	Governance Mechanisms as a Means of Increasing Consumer Trust in Online Exchange	6 correlations provided	Institutional	B2C
Lawrence A. Crosby (Crosby, Evans, and Cowles 1990)	*Journal of Marketing*	Relationship Quality in Services Selling: An Interpersonal Influence Perspective	6 correlations provided	Interpersonal	B2C
Patricia M. Doney (Doney and Cannon 1997)	*Journal of Marketing*	An Examination of the Nature of Trust in Buyer–Seller Relationships		Both	B2B
George R. Fechery (Fechery 1993)	Ph.D. dissertation	The Role of Empathy in Sales Agents and Customer Satisfaction in Residential Real Estate Settings	6 correlations provided	Interpersonal	B2C
Keith P. Fletcher (Fletcher and Peters 1997)	*Journal of Marketing Management*	Trust and Direct Marketing Environments: A Consumer Perspective	10 correlations provided	Institutional	B2C
Shankar Ganesan (Ganesan 1994)	*Journal of Marketing*	Determinants of Long-Term Orientation in Buyer–Seller Relationships	NR		
Ellen Garbarino (Garbarino and Johnson 1999)	*Journal of Marketing*	The Different Roles of Satisfaction, Trust and Commitment in Customer Relationships	21 correlations provided	Institutional	B2C

Contact Author/Source	Publication	Title	Literature Search Results	Target of Trust	Setting
Jule Gassenheimer (Gassenheimer and Manolis 2001)	*Journal of Managerial Issues*	The Influence of Product Customization and Supplier Selection on Future Intentions: The Mediating Effects of Salesperson and Organizational Trust	15 correlations provided	Both	B2B
David Gefen (Gefen, Karahanna, and Straub 2003)	*MIS Quarterly*	Trust and TAM in Online Shopping: An Integrated Model	21 correlations provided	Institutional	B2C
Spiros P. Gounaris (Gounaris 2005)	*Journal of Business Research*	Trust and Commitment Influences on Customer Retention: Insights from Business-to-Business Services	15 correlations provided	Institutional	B2B
Robert R. Harmon (Harmon and Coney 1982)	*Journal of Marketing Research*	The Persuasive Effects of Source Credibility in Buy and Lease Situations	NR		
Jon Hawes (Hawes, Rao, and Baker 1993)	*Journal of Personal Selling & Sales Management*	Retail Salesperson Attributes and the Role of Dependability in the Selection of Durable Goods	Data lost		
Tony L. Henthorne (Henthorne, LaTour, and Williams 1992)	*Journal of Personal Selling & Sales Management*	Initial Impressions in the Organizational Buyer–Seller Dyad: Sales Management Implications	NR		
Sandy Jap (Jap 2001)	*Journal of Personal Selling & Sales Management*	The Strategic Role of the Salesforce in Developing Customer Satisfaction Across the Relationship Lifecycle	28 correlations provided	Interpersonal	B2B
Julie T. Johnson (Johnson 1996)	Ph.D. dissertation	Influence of Interfirm Structure and Buyer–Seller Behaviors on Relationship Outcomes	78 correlations provided	Interpersonal	B2B
Eli Jones (Jones et al. 1998)	*Journal of Personal Selling & Sales Management*	Salesperson Race and Gender and the Access and Legitimacy Paradigm: Does Race Make a Difference?	15 correlations provided	Interpersonal	B2C
Susan M. Kennedy (Kennedy, Ferrell, and LeClair 2001)	*Journal of Business Research*	Consumers' Trust of Salesperson and Manufacturer: An Empirical Study	Data lost		
Russel Kingschott (Kingschott 2003)	Work in progress	The Effects of Psychological Contracts Within Supplier–Distributor Relationships	10 correlations provided	Institutional	B2B
Nirmalya Kumar (Kumar, Scheer, and Steenkamp 1995)	*Journal of Marketing Research*	The Effects of Perceived Interdependence on Dealer Attitudes	Data lost		
Ik-Whan Kwon (Kwon 2004)	*Journal of Supply Chain Management*	Factors Affecting the Level of Trust and Commitment in Supply Chain Relationships	NR		
Rosemary R. Lagace (Lagace, Dahlstrom, and Gassenheimer 1991)	*Journal of Personal Selling & Sales Management*	The Relevance of Ethical Salesperson Behavior on Relationship Quality: The Pharmaceutical Industry	Data lost		

Contact Author/Source	Publication	Title	Literature Search Results	Target of Trust	Setting
Edgar J. Langlois, Jr. (Langlois 1998)	Ph.D. dissertation	The Impact of Trust Between the Buyer and Seller on Purchase Decisions	105 correlations provided	Interpersonal	B2B
Thomas Leigh (Leigh and Summers 2002)	*Journal of Personal Selling & Sales Management*	An Initial Evaluation of Industrial Buyers' Impressions of Salespersons' Nonverbal Cues	Data lost		
Annie Liu (Liu and Leach 2001)	*Journal of Personal Selling & Sales Management*	Developing Loyal Customers with a Value-Adding Sales Force: Examining Customer Satisfaction and the Perceived Credibility of Consultative Salespeople	Data lost		
Ritu Lohtia (Lohtia et al. 2005)	*Journal of Business Research*	The Role of Commitment in Foreign–Japanese Relationships: Mediating Performance for Foreign Sellers in Japan	15 correlations provided	Interpersonal	B2B
Gerrard MacIntosh (MacIntosh 2002a)	*Journal of Travel and Tourism Marketing*	Building Trust and Satisfaction in Travel Counselor/Client Relationships	6 correlations provided	Interpersonal	B2C
Gerrard MacIntosh (MacIntosh 2002b)	*Journal of Services Marketing*	Perceived Risk and Outcome Differences in Multi-Level Service Relationships	10 correlations provided	Institutional	B2C
Gerrard MacIntosh (MacIntosh and Lockshin 1997)	*International Journal of Research in Marketing*	Retail Relationships and Store Loyalty: A Multi-Level Perspective	6 correlations provided	Both	B2C
Richard McFarland (McFarland 2002)	Ph.D. dissertation	Seller Influence Tactics (SITs) in the Buyer–Seller Dyad	15 correlations provided	Interpersonal	B2C
Robert M. Morgan (Morgan and Hunt 1994)	*Journal of Marketing*	The Commitment–Trust Theory of Relationship Marketing	NR		
Carolyn Y. Nicholson (Nicholson, Compeau, and Sethi 2001)	*Journal of the Academy of Marketing Science*	The Role of Interpersonal Liking in Building Trust in Long-Term Channel Relationships	6 correlations provided	Interpersonal	B2B
Bradley O'Hara (O'Hara, Netermeyer, and Burton 1991)	*Social Behavior and Personality*	An Examination of the Relative Effects of Source Expertise, Trustworthiness, and Likeability	Data lost		
Richard Plank (Plank, Reid, and Pullins 1999)	*Journal of Personal Selling & Sales Management*	Perceived Trust In Business-to-Business Sales: A New Measure	NR		
Rosemary Ramsey (Ramsey and Sohi 1997)	*Journal of the Academy of Marketing Science*	Listening to Your Customers: The Impact of Perceived Salesperson Listening Behavior on Relationship Outcomes	6 correlations provided	Interpersonal	B2C
Ko de Ruyter (Ruyter and Wetzels 2000)	*Journal of Service Research*	The Impact of Perceived Listening Behavior in Voice-to-Voice Service Encounters	NR		
Deepak Sirdeshmukh (Sirdeshmukh, Singh, and Sabol 2002)	*Journal of Marketing*	Consumer Trust, Value and Loyalty in Relational Exchanges	55 correlations provided	Both	B2C

Contact Author/Source	Publication	Title	Literature Search Results	Target of Trust	Setting
David Strutton (Strutton, Pelton, and Tanner 1996)	*Industrial Marketing Management*	Shall We Gather in the Garden: The Effect of Ingratiatory Behaviors on Buyer Trust in Salespeople	Data lost		
John E. Swan (Swan et al. 1988)	*Journal of Personal Selling & Sales Management*	Measuring Dimensions of Purchaser Trust of Industrial Salespeople	Data lost		
Amy Wong (Wong and Sohal 2002)	*International Journal of Retailing & Distribution Management*	An Examination of the Relationship Between Trust, Commitment and Relationship Quality	Data lost		
Andy Wood (Wood 2002)	*National Conference in Sales Management*	Trust Formation During the Initial Face-to-Face Sales Encounter	132 correlations provided	Both	
Andy Wood (Wood 2005)	*Journal of Business & Industrial Marketing*	Organizational Configuration as an Antecedent to Buying Centers' Size and Structure	352 correlations provided	Both	B2B
Andy Wood (Wood and Boles 2006)	Work in Progress	Initial Trust	66 correlations provided	Both	B2C
Andy Wood (Wood 2006)	*Journal of Personal Selling & Sales Management*	NLP Revisited: Nonverbal Communications and Signals of Trustworthiness	325 correlations provided	Both	B2C
Louise Young (Young and Albaum 2003)	*Journal of Personal Selling & Sales Management*	Measurement of Trust in Salesperson–Customer Relationships in Direct Selling	170 correlations provided	Interpersonal	B2C
Alex Zablah (Zablah 2005)	Ph.D. dissertation	A Communication-Based Perspective on CRM Success	26 correlations provided	Institutional	B2B

Notes: NR = no response; B2B = buyer's assessments in business to business; B2C = buyer's assessments in business to consumer.

A search of the literature with these constraints yielded 53 potential journal articles, conference papers, and dissertations. Each of the studies had items that measured trust, trustworthiness, or the trust-building components in market exchanges. The studies were identified through accepted meta-analytic methods. The methods include the use of electronic search engines, such as ProQuest and ABI/Inform, a review of peer-reviewed marketing journals, abstract searches of American Marketing Association Educators' Conference proceedings and National Sales Management conferences, and the University of Michigan dissertation index. In addition, we posted an electronic call for studies on the marketing listserv, ELMAR.

Obtaining a sufficient number of independent records in the data set is a challenge in an item-level meta-analysis (Klein et al. 2001). Of the original 53 studies identified as having measurements of the indicators, only one study (see Table 2) provided item-level correlations. Thus, authors' support was required to complete the meta-analysis. On the basis of Klein et al.'s (2001) procedure, we used the following contact heuristic during the years 2004 to 2006.

The lead author of each study was contacted with a letter soliciting item-level correlations and study statistics. The original letter was followed by telephone calls and e-mail requests to the authors who did not respond to the first inquiry. The results of the author contact effort appear in Table 2. Of the original 53 articles, authors from 32 provided the necessary data, 12 responded that the original data was lost, and nine did not respond to inquiries.

The solicited authors who had data provided statistics from 32 research projects, for a response rate of 78 percent. Several researchers had additional independent data sets, which resulted in 44 separate correlation data sets. Of the data sets, 28 were used as empirical evidence in peer-reviewed journal articles. Of the remaining data sets, nine were dissertation data sets, two were used to publish conference proceeding, and five were involved in works in progress.

Construction of the Measurement Matrix

As anticipated, the actual wording of the items from various studies displayed considerable variation within the 26 global indicators shown in Table 1. Although some wording simply represented reverse coding or minor adjustments for context, 45 of the items' wording structures differed significantly from the most common form. Indiscriminant inclusion of these item measures could potentially bias the correlation matrix structure if the item-level correlations were not representative of the underlying population correlation.

To resolve this potential bias, two expert judges familiar with the psychometric properties of trust-related measurement items were solicited to review the 45 questionable items. The judges were in agreement on 40 of the 45 items. The determination was that the correlations associated with the five disputed measurement items should not be included in the aggregated item-level correlation matrix. The other 40 measurement items were acceptable according to the judges. The appropriateness of this judgment process was determined by using the two-rater system as a special case of Rust and Cooil's (1994) multirater measure. This measure of interrater reliability was 0.882.

Table 3. Constructed Correlation Matrix and Reported *k* and *N* for Each Cell

	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**
A	32	19	14	14	17	12	7	18	13	10	7	7	10
	8,048	5,467	3,278	3,235	3,763	2,964	2,357	5,351	2,941	1,547	2,329	1,683	3,149
B	0.70	20	12	12	11	10	8	17	9	10	5	7	7
		5,718	2,849	3,000	1,994	2,765	2,599	5,000	2,215	1,546	1,816	1,681	2,342
C	0.60	0.65	15	8	9	9	6	13	5	9	6	5	6
			3,407	2,596	1,467	1,312	432	2,990	1,339	1,404	432	1,328	1,034
D	0.57	0.64	0.63	15	7	6	6	12	9	5	6	7	6
				3,360	1,283	428	977	2,346	2,221	652	432	1,719	960
E	0.60	0.57	0.58	0.75	20	11	6	12	6	9	6	6	5
					4,432	1,792	954	2,150	901	1,502	432	430	737
F	0.58	0.57	0.57	0.73	0.79	16	6	12	6	9	5	6	5
						4,025	2,013	3,239	430	1,548	1,815	428	1,816
G	0.53	0.55	0.64	0.71	0.77	0.77	10	9	6	6	6	5	6
							2,955	2,615	967	430	1,963	641	2,045
H	0.59	0.56	0.63	0.66	0.69	0.74	0.67	27	9	9	6	7	7
								6,786	2,042	1,409	1,963	1,681	2,342
I	–0.52	–0.52	–0.62	–0.64	–0.57	–0.65	–0.58	–0.60	14	6	7	7	7
									3,265	431	1,091	1,717	1,157
J	0.52	0.47	0.53	0.66	0.69	0.62	0.69	0.59	–0.70	11	6	6	6
										1,911	431	428	431
K	0.40	0.28	0.26	0.26	0.22	0.33	0.40	0.46	–0.41	0.22	8	6	7
											2,477	429	2,327
L	–0.36	–0.31	–0.31	–0.40	–0.23	–0.28	–0.23	–0.41	0.47	–0.19	–0.69	7	5
												1,721	642
M	–0.38	–0.32	–0.38	–0.34	–0.32	–0.34	–0.41	–0.41	0.36	–0.23	–0.60	0.67	9
													2,861
N	0.46	0.45	0.49	0.51	0.53	0.45	0.37	0.44	–0.40	0.58	–0.03	–0.21	–0.02
O	0.46	0.41	0.51	0.51	0.57	0.50	0.47	0.44	–0.46	0.58	0.15	–0.14	–0.14
P	0.42	0.44	0.54	0.54	0.51	0.48	0.42	0.47	–0.47	0.54	0.16	–0.29	–0.15
Q	0.42	0.47	0.56	0.51	0.56	0.70	0.46	0.66	–0.46	0.57	0.18	–0.18	–0.18
R	0.52	0.50	0.54	0.53	0.48	0.53	0.53	0.55	–0.49	0.49	0.26	–0.21	–0.32
S	0.52	0.51	0.59	0.58	0.59	0.59	0.52	0.57	–0.50	0.57	0.23	–0.26	–0.29
T	0.56	0.50	0.57	0.59	0.63	0.64	0.59	0.57	–0.61	0.60	0.26	–0.23	–0.29
U	0.51	0.46	0.60	0.60	0.62	0.61	0.55	0.52	–0.55	0.54	0.24	–0.34	–0.34
V	0.64	0.54	0.61	0.59	0.59	0.62	0.57	0.63	–0.61	0.53	0.27	–0.36	–0.39
W	0.59	0.56	0.59	0.73	0.67	0.71	0.60	0.67	–0.60	0.59	0.48	–0.43	–0.43
X	0.59	0.57	0.63	0.65	0.64	0.69	0.61	0.67	–0.60	0.60	0.30	–0.45	–0.34
Y	0.59	0.58	0.61	0.70	0.70	0.72	0.60	0.65	–0.63	0.63	0.34	–0.43	–0.36
Z	–0.47	–0.42	–0.52	–0.51	–0.50	–0.50	–0.40	–0.60	0.52	–0.44	–0.46	0.47	0.56

Table 3. Constructed Correlation Matrix and Reported *k* and *N* for Each Cell (continued)

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	14	7	7	10	6	6	6	6	8	23	11	8	12
	3,247	1,077	1,690	1,392	2,039	1,567	432	1,415	1,186	5,047	2,832	1,756	2,398
B	14	7	7	8	6	6	6	5	8	13	9	7	7
	3,243	1,076	1,687	1,186	2,040	1,562	432	1,338	1,186	3,103	2,217	1,680	1,105
C	11	6	6	8	6	6	6	5	8	9	7	5	7
	2,553	881	1,469	1,186	792	1,570	432	1,346	1,186	2,222	1,865	1,326	1,079
D	10	6	7	5	5	6	6	5	6	14	10	8	8
	2,502	881	1,702	545	656	1,569	432	1,345	432	3,026	2,689	1,802	1,085
E	8	6	6	6	6	6	6	5	6	16	7	5	9
	1,356	853	429	809	431	432	432	504	809	3,241	1,349	503	2,032
F	8	5	6	8	5	6	6	5	8	11	6	5	7
	1,185	627	429	1,185	1,815	432	432	504	1,185	1,878	774	503	1,144
G	7	6	5	6	5	6	6	6	6	9	6	6	5
	1,123	431	643	431	1,815	432	432	432	431	1,477	1,104	883	672
H	14	7	8	9	9	8	6	5	8	19	13	9	9
	3,071	1,075	1,826	1,298	2,252	1,814	432	1,341	1,185	4,257	3,200	2,034	1,453
I	9	6	7	6	6	5	6	5	6	13	7	7	5
	2,168	431	1,679	635	431	1,326	432	1,328	432	2,796	1,725	1,683	639
J	9	5	6	8	6	6	6	6	8	6	6	6	5
	1,409	657	429	1,185	431	432	432	432	1,185	1,008	432	431	795
K	5	6	6	6	5	6	6	6	6	7	6	6	6
	578	431	429	431	1,815	432	432	432	432	1,092	431	431	431
L	7	6	7	6	6	5	6	5	6	7	7	7	6
	1,692	431	1,676	431	430	1,322	431	1,324	431	1,685	1,720	1,678	430
M	5	6	5	6	5	6	6	6	6	8	6	5	5
	653	431	642	431	1,814	431	431	431	431	1,471	652	645	726
N	15	6	7	8	5	6	6	5	8	10	8	7	6
	3,411	880	1,699	1,186	656	1,569	432	1,346	1,186	2,316	1,907	1,692	951
O	0.78	8	5	6	5	5	6	6	6	7	5	6	5
		1,355	706	432	655	655	432	432	432	1,070	655	431	655
P	0.64	0.73	8	6	5	5	6	5	6	7	7	7	6
			1,980	432	567	1,337	432	1,339	432	1,692	1,685	1,684	430
Q	0.61	0.73	0.72	11	6	6	6	6	8	7	6	5	6
				1,506	431	432	432	432	1,186	740	431	544	431
R	0.55	0.58	0.51	0.60	10	6	5	6	5	5	7	6	7
					2,702	733	709	433	710	653	904	431	904
S	0.49	0.56	0.52	0.57	0.73	7	6	5	6	6	7	5	7
						906	432	1,352	433	1,563	904	1,325	904
T	0.47	0.55	0.56	0.62	0.70	0.76	5	6	5	6	6	6	6
							709	432	710	431	431	431	431
U	0.52	0.57	0.61	0.59	0.66	0.68	0.69	6	6	6	6	6	6
								1,421	433	1,412	1,401	1,397	431
V	0.49	0.57	0.56	0.64	0.67	0.75	0.74	0.87	9	6	6	6	6
									1,464	431	431	431	431
W	0.51	0.59	0.58	0.52	0.57	0.63	0.70	0.72	0.76	32	11	10	13
										6,934	2,565	2,108	2,386
X	0.44	0.51	0.48	0.48	0.61	0.66	0.67	0.62	0.71	0.73	15	8	7
											3,858	1,757	1,368
Y	0.50	0.50	0.57	0.56	0.55	0.64	0.72	0.65	0.69	0.77	0.71	10	6
												2,134	431
Z	–0.36	–0.43	–0.31	–0.41	–0.12	–0.18	–0.50	–0.47	–0.51	–0.55	–0.35	–0.52	17/3,472

Note: Correlations are on the lower diagonal and *k* and *N* on the upper diagonal.

Aggregating Cell Correlations

A review of the formula for calculating Pearson product moments includes using standard deviations to allow for comparability of differing units of measures between items (for a complete discussion, see Cohen and Cohen 1983). A bias can develop when the aggregation of correlations uses the average of study effects, because each study in the meta-analysis likely has varying standard deviations. To correct for this potential bias, reported standard deviations were used to reverse the individual correlations on any two measurement variables into a form that could be aggregated. Pearson correlations were transformed into the sum of the measures' cross-products by adjusting for degrees of freedom and using standard deviations. Individual sums of cross-products and standard deviations both were aggregated. These aggregated figures were then used to create a summary correlation between the two measures of interest.

This process created meta-analytic cells (MACs) within the matrix. The 44 data sets fulfilled our goal to have a minimum of five independent interitem correlations for each of the 351 MACs with *k* (number of aggregated correlations) ranging from five to 26. The size of each MAC was deemed sufficient for examination of artifactual study effects through homogeneity tests. Lack of homogeneity suggests the presence of study artifacts, which should be accounted for in the meta-analysis. The absence of zero within the interval provides evidence that the aggregated study effect is not spurious.

Investigation of 95 percent credibility intervals of each MAC yielded few indications of spurious study effects. Indications of spurious effects were focused on item measures related to the wording "not deceptive" and "false claims." These items were removed during the measurement model refinement process, though they remained in the initial measurement meta-correlation matrix.

Reported Sample Size

As expected, the sample size of each study differed, resulting in considerable variation in aggregated cell sample size. Klein et al. (2001) suggested the use of the mean that is the most conservative and least influential in artificially reducing effect size variation. For this study, unlike Klein et al. (2001), the arithmetic average of sample size for all cells appears to best meet these criteria and yields an *N* of 3,185. This arithmetic average was used for the sample size of the measurement model.

Measurement Model Refinement

To assess various item validities and their measurement of the targeted domain, we fit 26 indicators of the trust formation nomological network to a measurement model with only one endogenous construct. Model refinement then began with an assessment of model fit to the constructed measurement matrix. The measurement model for this analysis is based on the aggregated item correlation matrix (see Table 3), and each subsequent step in measurement model refinement was based on this matrix. The fit indices (see Table 4) of this null measurement model were as follows: $\chi^2 = 22{,}090.87$ with 299 degrees of freedom, $p < 0.01$; normed fit index (NFI) = 0.90; comparative fit index (CFI) = 0.90; standardized root mean

square residual (SRMR) = 0.082; root mean square of approximation (RMSEA) (90% confidence interval [CI] = 0.152 (0.15 to 0.15)); and nonnormed fit index (NNFI) = 0.89. The significant χ^2 indicates less than adequate fit. Other fit indices indicate that this measurement model is not a reasonable representation of the variance–covariance matrix, though all measures loaded significantly on the null factor ($t > 2.00$).

Table 4. Summary Fit Statistics of Model Iterations

Iteration Adjustment	χ^2	*F*-Statistic of χ^2 Change	NFI	CFI	SRMR	RMSEA	NFI	Mean of Reliability Construct	Mean of AVE Construct
Full disaggregated model with all 26 items	22,090.87		0.90	0.90	0.082	0.152	0.89	0.961	0.494
Full disaggregated model with 25 items Eliminate item "target is not deceptive"	18,681.9	142.04*	0.91	0.91	0.073	0.154	0.91	0.967	0.547
Full disaggregated model with 24 items Eliminate item "target makes false claims"	16,396.64	99.36*	0.92	0.92	0.066	0.14	0.91	0.968	0.562
Full disaggregated model with 22 items Eliminate item "target bends facts"	15,011.37	62.97*	0.93	0.93	0.064	0.14	0.92	0.969	0.579
Full disaggregated model with 22 items Eliminate item "target makes me worry"	13,174.22	87.33*	0.94	0.94	0.061	0.14	0.94	0.969	0.590
Five-construct model with 22 items	6,445.93	672.83*	0.96	0.96	0.050	0.099	0.96	0.87	0.618

* $p < 0.01$.

The reliability measure of the 26 indicators was 0.961, which indicates that the disaggregated model had internal consistency. This result suggests that these measures have a strong relationship to trust formation. However, the average variance extracted (AVE) of 0.494 is below the 0.50 threshold, and given the large sample size, this disaggregated model explains little of the variance of the data. Thus, it can be concluded that this null or first measurement model fails to explain adequately the observed data and that further refinement of the measurement model is warranted.

Examination of the indicators suggests that the item with "the seller is not deceptive" explains the smallest amount of variance and was eliminated in the next iteration. This revised measurement model has a chi-square of 18,681.90 with 275 degrees of freedom. Comparison of the first model's chi-square statistic with that of this version results in an *F*-statistic of 142.04, which is statistically significant and indicates better measurement model fit. Overall, this model's chi-square still indicates overall poor fit. The relative fit indices—NFI = 0.91 and CFI = 0.91—still do not demonstrate substantial improvement over the null measurement model, nor do the absolute measures of fit—SRMR = 0.073 and RMSEA (90% CI) = 0.145 (0.14 to 0.15).

Because the balance of the analysis is essentially the same as that in the previous iterations and because it indicates further refinement of the measures of honesty, the fit indices are not reported (see Table 4). In the next several refinements of the measurement model, the items with the wording "makes false claims" and "bends facts" appear to add more variance than they explain. After their deletion, the measurement model exhibits better overall fit.

The last measurement model revision was indicated by the low variance explained by the measure "seller makes me worry." Eliminating this indicator improves fit. The chi-square is 13,174.22 with 209 degrees of freedom, which yields a significant *F*-statistic compared to the competing model. The relative fit indices of NFI and CFI both equal 0.94, and absolute measures of fit are SRMR = 0.061 and RMSEA (90% CI) = 0.14 (0.14 to 0.14). The NNFI is 0.94. Eliminating these four items substantially improves overall model fit.

Additional attempts to improve this measurement model did not yield any significant improvement. Evidently, this measurement model specification is the best fit of the observed data from the meta-analysis to a hypothesized model. Fit indices indicate that the measurement model is a good fit, supporting H1. This measurement model provides evidence that the 22 remaining measures appear to be drawn from the same nomological network.

Examination of this nomological network begins by contrasting the two models implied in the discussion leading up to H6. Both models suggest that a buyer's appraisals of seller characteristics will influence their assessment of a seller's trustworthiness. In Figure 2, the two hypothesized constructs of credibility and compatibility are modeled as predictors of the trustworthiness construct with trustworthiness and expertise subsequently influencing trust. In the alternative model (Figure 3), the four traits of benevolence, credibility, expertise, and compatibility are hypothesized to influence assessments of trustworthiness.

The alternative model, as would be expected of a model with 22 measurement indicators and sample size of 3,185, does not appear to have adequate model fit based on the first indicator chi-square statistic, which equals 6,445.93 with 199 degrees of freedom. However, the comparison of the explained variance of the final measurement model and this alternative model has a significant *F*-statistic of 672.83 with an RMSEA of 0.099 (0.097 to 0.10). NNFI of this causal model is 0.96, NFI is 0.96, SRMR is 0.050, and the CFI is 0.96, which, according to Hu and Bentler's (1999) criteria, meets the combination of cutoff values for assessing overall fit. When the SRMR is less than or equal to 0.08 and the CFI is greater than or equal to 0.95, then despite the large chi-square, the model is a good fit.

However, examination of the path coefficients does not indicate support for this model as explanatory of trust formation. The path from benevolence to trustworthiness is not significant. The path coefficient is –0.03 and the *t*-value is 0.52. A positive assessment of seller benevolence is not predictive of a trustworthiness classification. Further discounting the appropriateness of this model is the negative relationship between expertise and trustworthiness. The path coefficient is –0.08, with a *t*-value of 4.06. Although fit indices of this alternative model show adequacy, it is difficult to reconcile this model with evidence suggesting the importance of benevolence to trust.

In addition to the lack of significance between benevolence and trustworthiness, the inverse relationship between a seller's expertise and assessments of trustworthiness suggests the model in Figure 2 may be a more appropriate representation of trust formation. The first test of this model is the indication of fit for a model using credibility and compatibility as predictive of trustworthiness with expertise and trustworthiness as positively related to trust. The chi-square is 6,498.03 with 202 degrees of freedom; $p < 0.01$, which is a statistically significant improvement over the final measurement model. RMSEA is 0.099 with a 90% CI of 0.097 to 0.10. This model has excellent fit with an NNFI 0.97 and an NFI at 0.96. The CFI is 0.97 with SRMR of 0.04. Further support for this model comes from squared multiple correlations of trustworthiness and trust being 0.96 and 0.79, respectively. Moreover, each indicator of this model has a statistically significant loading upon its respective construct.

The internal consistency of the three measures that are indicative of trustworthiness (0.88) extends support for H2. The other four constructs of trust, credibility, expertise, and compatibility also had measures with reliability calculations above 0.85. Discriminant validity of all constructs is indicated by squared correlation of any two paired constructs being less than any extracted variance of either construct or the reliability index (Fornell and Larcker 1981). The two constructs of trust and trustworthiness with a squared correlation of 0.79 also compare favorably to the reliabilities of 0.85 and 0.90, respectively, though not as well to the AVE of 0.65 and 0.74, respectively. This issue is discussed further in the Limitations and Future Directions section.

As noted earlier, theoretically, it appears likely that existing measures of benevolent intentions are indicative of the "encapsulated interest" view of trust. In addition, the model depicted in Figure 2 conceptualizes expertise having a direct influence on trust based on the context-specific nature of expertise. Path analysis indicates support for H3 through H6. H3 is supported, as the path coefficient is positive at 0.43 and the *t*-value = 23.71. This outcome suggests that judgments about compatibility will positively influence trustworthiness categorizations. The path analysis also provides support for H4. The outcome suggests that a positive assessment of the seller's credibility is predictive of trustworthiness. The path coefficient is 0.60 and the *t*-value is 30.79. A positive perception of expertise is positively related to trust. A *t*-value of 2.05 shows that the path coefficient of 0.05 is statistically significant. H6 has support in this model with the path from trustworthiness to trust being significant. The path coefficient is 0.85 with a *t*-statistic of 29.15.

Measurement Equivalence

Measurement equivalence across targets of trust (salesperson and selling institution) indicates the generalizability of these remaining item measures. In addition, it is possible to test the factor structure equivalence across these groups and across causal models. However, in line with Jöreskog and Sörbom's (2001) and Raju, Laffitte, and Bryne's (2002) recommendations, the first step is to assess and test equality of observed variance–covariance matrices. If the test of equality of the matrices is not met, subsequent tests of invariance can be performed.

The reduced form of the variance–covariance matrix, as developed from the constructed correlation matrix (only the 22 remaining measurement items), was used to test equivalence. Sensitivity testing revealed that the chi-square tests of equivalence are particularly influenced by

large sample sizes. For this reason, and using the rule of thumb of 10 measurements for each item, we fix the sample size for each group at 220. The two-group test of salesperson versus selling institution failed with a chi-square of 233.16 with 253 degrees of freedom ($p = 0.809$), indicating that there is equivalence in the matrices across the groups. The test of the equivalence of matrices of the consumer setting and business setting failed with a chi-square of 347.3 with 253 degrees of freedom. The outcome of these comparison tests does not indicate support for either part of H7.

CONCLUSION

This research advances the marketing literature in two ways. First, it advances our current understanding of trust by introducing the methodological technique of item-level intercorrelation meta-analysis. Second, the study provides empirical evidence supporting the theoretical model in which a buyer uses various attributes of targets of trust to judge if a seller is trustworthy. One seller characteristic—expertise—positively influences a buyer's trust. The meta-analytic outcomes suggest that there is an underlying measurement structure across settings, which may further explicate the understanding of trust and its conceptualization.

Implications of the Meta-Analysis

This study demonstrates the applicability of the item-level meta-analysis through its use on the nomological network of trust-related constructs. Results provide evidence of convergent and discriminant validity of some trust-related constructs based on our empirical analysis of measurement items specifically related to trust formation constructs. Furthermore, measurement model results indicate that some existing item measures are not relevant to the nomological network of trust-related constructs. Beyond these important psychometric clarifications of trust measurement, the meta-analytic technique provides a basis for testing buyer trust outcomes based on their assessment of the seller.

Doney and Cannon (1997) propose that a trust evaluator uses different processes to assess trust in a potential exchange partner. They suggest that various factors invoke these assessment processes, and that an additional step is necessary in the trust formation process. The current study suggests that a stimulus, generally a perceptual cue, initiates a buyer's assessment of the seller. The buyer uses his or her assessment of a specific attribute to categorize a seller as either a member or nonmember of the trustworthy group. This overall evaluation of a seller's trustworthiness has the greatest impact on trust. In addition, there is some support for the proposition that a seller's expertise is a trait that directly influences trust.

Causal model results imply that credibility and compatibility are underlying attributes of trustworthiness. This is a different conceptualization than found in some previous research. There is little support for the classification of the seller as an expert being related to overall trustworthiness. The relatively "weak" influence of expertise upon trust may seem counterintuitive but makes conceptual sense within the "encapsulated interests" framework. A buyer may perceive that the seller must have the expertise to accomplish a task that advances the buyer's interest. Otherwise, the seller's trustworthiness is not sufficient to lead to trust.

Meta-analytic results also indicate that the seller's benevolence, as an innate trait, is not a significant indicator of trustworthiness. As conceptualized by Kumar, Scheer, and Steenkamp (1995), measurements of benevolent intentions indicate a seller's positive intentions toward the buyer. This particular definition parallels the concepts of the "encapsulated interests" formation of trust. A buyer's trust in a seller to advance their interests is the judgment that the seller benevolently has the buyer's interests in mind. Trust is the buyer's conclusion about the seller's deliberate benevolent intentions in the exchange.

Although it was considered that the type of business encounter (business or consumer settings) might influence results, each attribute holds across both B2B and B2C contexts. The traits of credibility, compatibility, and expertise are integral to trust formation for both salesperson and selling firm. Tests of H7 indicate each construct is internally consistent and significantly related to the other constructs in the nomological network regardless of the target of trust or the context. These outcomes support the suggestion of a consistent and stable trust formation process in marketing exchanges.

Figure 2 presents the trust formation framework supported by our meta-analytic results. We recommend the use of these indicators in all future studies of exchange-related trust, particularly those involving an interaction between a salesperson and a customer. Consistent use of these items will enable researchers to compare results of one study with others in either similar or different contexts and address a shortcoming of the current trust-related literature.

Limitations and Future Directions

This meta-analysis, as with all meta-analyses, suffers from our inability to include correlations of all relevant studies. Although it is not apparent from the literature, it is possible that specific item measures are omitted because a single author or set of authors using a common item failed to respond to the repeated calls for study measures. To help alleviate this potential bias, we conducted a search of the literature and made many efforts to follow up with authors.

Beyond nonresponse issues, file-drawer bias of unpublished results is another possible limitation. In a file-drawer situation, the main study effect may not have empirical support, or the incremental contribution of the entire study may not support publication. However, individually significant item measures may exist in unpublished reports. File-drawer bias is best addressed by repeated calls for papers through both personal appeals and electronic announcements. These steps were undertaken in an attempt to reduce nonresponse bias. However, due to the scant response from dissertations, working papers, and conference papers, it is not possible to test for differences between published and unpublished groups. This is a limitation of this study.

A review of the approximate date of data collection, as indicated by the study date, indicates a possible bias based on the time period when the data were collected. Many data sets were lost during the transition from mainframe computers to personal computer–based data processing. It is possible that these data are unrecoverable—as reported by several authors. Although this is a limitation, it also presents an opportunity to replicate and extend these lost studies using the trust measures that we recommend. In addition, researchers should examine these older studies for item measures that seem to capture the constructs presented in the results of this meta-analysis.

They should also search for any items from newly created trust research that appears to capture the constructs and incorporate such items into their current studies.

Finally, we calculated the Fail Safe N (FSN) of each of the individual meta-analysis used to construct the MACs. We found that, of the cells included in the final model, 30 is the smallest FSN necessary to change correlations down to zero. This indicates robustness to the item measures retained in the final model.

Although these limitations are common to all meta-analytic techniques, some limitations exist specific to this study. The lack of full proof of the discriminant validity between the measures of trustworthiness and trust indicates a fruitful area of future research. Additional work on the conceptualization of these two constructs should add refinement in measures leading to the development of additional indicators. These new indicators coupled with existing measures will likely increase convergence through precision while increasing discriminant validity. This discussion of developing additional indicators suggests the possibility that additional variables may be included in the model. These new constructs may increase the explanatory power of the model as well as mediate or suppress the relationships in the presented trust formation models.

Adding either indicators or constructs highlights a unique benefit to the item-level meta-analysis. As researchers develop or replicate new item measures, they can incorporate their measures into the meta-correlation matrix. Taking such an approach could help alleviate shortcomings of this study such as the paucity of measures of trustworthiness or the relatively weak influence of expertise upon trust. As the measure is used and the analysis repeated, empirical support for these new items will develop or results may indicate that further measure refinement is indicated. This process is also applicable for new constructs indicative of trustworthy groups. Item-level meta-analysis extends the validation of new measures beyond existing methods by immediately incorporating new measures into a nomological network of item measures. For example, study effects from research in source credibility (Lichtenstein and Bearden 1989; Ohanian 1990) could extend the current research by adding similar measures to the covariance matrix for contrast testing.

Another excellent example of additional refinement, which may be necessary, could develop from future examinations of our failure to find empirical evidence of differences between individual and organizational trust. Hamilton and Sherman (1996) suggest that individuals develop different assessments of individuals and groups even when using the same inputs. Therefore, future research could look to refine measures that might provide empirical support for this view.

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