

# Trust, Trustworthiness, and Trust Propensity: A Meta-Analytic Test of Their Unique Relationships With Risk Taking and Job Performance

Jason A. Colquitt, Brent A. Scott, and Jeffery A. LePine  
University of Florida

The trust literature distinguishes *trustworthiness* (the ability, benevolence, and integrity of a trustee) and *trust propensity* (a dispositional willingness to rely on others) from *trust* (the intention to accept vulnerability to a trustee based on positive expectations of his or her actions). Although this distinction has clarified some confusion in the literature, it remains unclear (a) which trust antecedents have the strongest relationships with trust and (b) whether trust fully mediates the effects of trustworthiness and trust propensity on behavioral outcomes. Our meta-analysis of 132 independent samples summarized the relationships between the trust variables and both risk taking and job performance (task performance, citizenship behavior, counterproductive behavior). Meta-analytic structural equation modeling supported a partial mediation model wherein trustworthiness and trust propensity explained incremental variance in the behavioral outcomes when trust was controlled. Further analyses revealed that the trustworthiness dimensions also predicted affective commitment, which had unique relationships with the outcomes when controlling for trust. These results generalized across different types of trust measures (i.e., positive expectations measures, willingness-to-be-vulnerable measures, and direct measures) and different trust referents (i.e., leaders, coworkers).

*Keywords:* trust; trustworthiness, commitment, integrity, citizenship

*Trust* has become an important topic of inquiry in a variety of disciplines, including management, ethics, sociology, psychology, and economics. Although this multidisciplinary perspective has created a breadth that strengthens the trust literature (Bigley & Pearce, 1998; Rousseau, Sitkin, Burt, & Camerer, 1998), it also has created confusion about the definition and conceptualization of the trust construct. For example, some scholars view trust as a behavioral intention (Mayer, Davis, & Schoorman, 1995; McKnight, Cummings, & Chervany, 1998; Rousseau et al., 1998) or an internal action, similar to choosing, judging, or preferring (e.g., Lewis & Weigert, 1985; Riker, 1971). Others view trust as synonymous with *trustworthiness*, discussing trust in the context of personal characteristics that inspire positive expectations on the part of other individuals (e.g., Butler & Cantrell, 1984; McKnight et al., 1998). Still others view trust as a facet of personality that develops early in life and remains relatively stable through adulthood (Rotter, 1967; Webb & Worchel, 1986). Finally, others treat trust as a synonym for cooperation or risk taking (e.g., Kee &

Knox, 1970; Lewis & Weigert, 1985; Zand, 1972), often operationalizing it using cooperative choices in a dilemma game (e.g., Deutsch, 1958, 1960).

Two articles published in the mid-to-late 1990s attempted to clarify some of this confusion (Mayer et al., 1995; Rousseau et al., 1998). Mayer et al.'s integrative model defined trust as the willingness of a trustor to be vulnerable to the actions of a trustee based on the expectation that the trustee will perform a particular action. Similarly, Rousseau et al.'s cross-discipline review defined trust as a psychological state comprising the intentions to accept vulnerability based on positive expectations of the actions of the trustee. Both definitions have two primary components. One component is the intention to accept vulnerability, which is rooted in several earlier conceptualizations of trust (e.g., Boon & Holmes, 1991; Deutsch, 1958; Govier, 1994; Zand, 1972). The other component is positive expectations, also present in several earlier conceptualizations of trust (e.g., Barber, 1983; Boon & Holmes, 1991; Cook & Wall, 1980; Golembiewski & McConkie, 1975; Read, 1962; Roberts & O'Reilly, 1974).

In addition to clarifying what trust is, Mayer et al.'s (1995) integrative model clarified what trust is not. First and foremost, Mayer et al.'s model separated trust from trustworthiness, with three characteristics of the trustee (ability, benevolence, and integrity) appearing as antecedents of trust. This structure, which has been adopted in subsequent models (McKnight et al., 1998; Ross & LaCroix, 1996; M. Williams, 2001) echoes Gabarro's (1978) suggestion that trustworthiness is a multifaceted construct that captures the competence and character of the trustee (see also Butler, 1991; Butler & Cantrell, 1984; Kee & Knox, 1970). In addition, Mayer et al. drew a distinction between trust as a situational state and trust as a personality variable, with *trust propensity*

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Jason A. Colquitt, Brent A. Scott, and Jeffery A. LePine, Department of Management, Warrington College of Business Administration, University of Florida.

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Correspondence concerning this article should be addressed to Jason A. Colquitt, Department of Management, Warrington College of Business Administration, University of Florida, P.O. Box 117165, Gainesville, FL 32611-7165. E-mail: colquitt@ufl.edu

defined as a stable individual difference that affects the likelihood that a person will trust (see also Rotter, 1967; Stack, 1978).

Although the separation of trust, trustworthiness, and trust propensity has clarified the structure of the literature, five critical questions remain unanswered. First, do all three facets of trustworthiness—ability, benevolence, and integrity—have significant, unique relationships with trust, and how strong are those relationships? Second, does trust propensity remain important once trustworthiness can be gauged, or does its effect on trust disappear when trustworthiness is controlled? Third, are trustworthiness and trust propensity important only because they help inspire trust, meaning that trust fully mediates their effects on relevant consequences? Fourth, how does the approach used to measure trust alter its relationship with antecedents and consequences? Scholars have used a number of approaches to measure trust (e.g., Cook & Wall, 1980; Driscoll, 1978; Earley, 1986; Mayer & Davis, 1999; Read, 1962; Roberts & O'Reilly, 1974), and it remains unclear whether the nomological network for trust varies across those approaches. Fifth, do trust relationships vary according to whether the trustee is a leader versus a coworker? Past research has drawn a distinction between trust in leaders and trust in coworkers (Dirks & Ferrin, 2002), yet Mayer et al.'s (1995) model is purported to be equally relevant to either sort of trust referent.

The present study used meta-analytic structural equation modeling (Viswesvaran & Ones, 1995) to explore these five questions. Although the trust literature previously has been the subject of a meta-analysis, that review did not address these specific research questions. Dirks and Ferrin (2002) meta-analyzed the results of 93 articles examining the antecedents (e.g., leadership style, participation in decision making) and consequences (e.g., organizational commitment, job performance) of trust. Although their review provided a useful and still timely quantitative summary of the literature, their decisions about conceptualizing trust were not necessarily made with Mayer et al.'s (1995) model in mind. As a result, what they coded as *trust* often represented, in a Mayer et al. sense, an amalgam of trust, ability, benevolence, and integrity. This approach makes it difficult to estimate the relationships between ability, benevolence, integrity, and trust and to explore their unique relationships with outcomes. In addition, Dirks and Ferrin's review focused on trust in leaders, leaving open the possibility that the antecedents and consequences of trust differ from leader referents to coworker referents. Our article therefore provides a useful complement to Dirks and Ferrin's review by exploring a different set of research questions.

In exploring the five aforementioned research questions, we focused on two broad outcomes of trust: risk taking and job performance. Recall that some scholars have equated trust with behaviors that convey risk taking (e.g., Deutsch, 1958, 1960; Kee & Knox, 1970; Lewis & Weigert, 1985; Zand, 1972). In Mayer et al.'s (1995) formulation, the distinction between trust and risk taking reflects the distinction between a willingness to be vulnerable and actually becoming vulnerable. Risk taking therefore stands as the most proximal behavioral outcome or expression of trust (Mayer et al., 1995; Ross & LaCroix, 1996). With respect to job performance, trust is believed to affect the manner in which a trustor allocates resources when interacting with the trustee (Dirks & Ferrin, 2002; Mayer & Gavin, 2005). If a trustor is willing to be vulnerable to leaders and colleagues, the trustor is free to focus full attention on job tasks as opposed to diverting energy to monitor-

ing. Trust also allows the development of a more effective exchange relationship between the trustor and trustee (Blau, 1964), which encourages more beneficial performance behaviors on the job. Consistent with Rotundo and Sackett's (2002) multidimensional model of job performance, we explored three specific performance facets: task performance (Borman & Motowidlo, 1993), citizenship behavior (Smith, Organ, & Near, 1983), and counterproductive behavior (Sackett & DeVore, 2001).

## Trust Antecedents: Trustworthiness and Trust Propensity

### *Trustworthiness*

The definitions of trust offered by Mayer et al. (1995) and Rousseau et al. (1998) both include an expectation that another party will perform a particular action. One driver of that expectation is trustworthiness, as Lewis and Weigert (1985) noted:

First, trust is based on a cognitive process which discriminates among persons and institutions that are trustworthy, distrusted, and unknown. In this sense, we cognitively choose whom we will trust in which respects and under which circumstances, and we base the choice on what we take to be "good reasons," constituting evidence of trustworthiness. (p. 970)

In the words of Flores and Solomon (1998), "In the ideal case, one trusts someone because she is trustworthy, and one's trustworthiness inspires trust" (p. 209). Clearly, then, the concept of trustworthiness is central to understanding and predicting trust levels.

Gabarro (1978) conducted a longitudinal study of how managers develop working relationships with their subordinates. He conducted interviews with newly appointed managers over a 3-year time period, focusing specifically on the "bases of trust" (p. 295). One of those bases was competence or *ability*, which captures the knowledge and skills needed to do a specific job along with the interpersonal skills and general wisdom needed to succeed in an organization (Gabarro, 1978). Ability has become one of the more commonly discussed components of trustworthiness (Barber, 1983; Butler, 1991; Butler & Cantrell, 1984; Gabarro, 1978; Kee & Knox, 1970; Mayer et al., 1995). Another of those bases was *character*, a multifaceted construct that subsumes concepts like honesty, fairness, openness, caring motives and intentions, and predictability. Mayer et al.'s model separates character into two components. The first component is *benevolence*, defined as the extent to which a trustee is believed to want to do good for the trustor, apart from any profit motives, with synonyms including *loyalty*, *openness*, *caring*, or *supportiveness* (Mayer et al., 1995). The second component is *integrity*, defined as the extent to which a trustee is believed to adhere to sound moral and ethical principles, with synonyms including *fairness*, *justice*, *consistency*, and *promise fulfillment*.

Although the relevance of ability, benevolence, and integrity may seem intuitive, it remains unclear whether each has a unique impact on trust levels. It may be that either ability or character is sufficient for fostering trust but that both are not needed. Although that expectation seems reasonable, there are theoretical reasons to expect ability and character to have unique relationships with trust. First, ability captures the "can-do" component of trustworthiness by describing whether the trustee has the skills and abilities needed

to act in an appropriate fashion. In contrast, the character variables capture the “will-do” component of trustworthiness by describing whether the trustee will choose to use those skills and abilities to act in the best interest of the trustor. Such “can-do” and “will-do” explanations for volitional behavior tend to exert effects independent of one another (e.g., Campbell, 1990).

It also may be that the effects of the two character facets—benevolence and integrity—are redundant with each another. In support of this notion, some studies using both variables have failed to uncover significant, unique effects for both (Jarvenpaa, Knoll, & Leidner, 1998; Mayer & Gavin, 2005). However, there are theoretical reasons to expect benevolence and integrity to have unique relationships with trust. Integrity represents a very rational reason to trust someone, as a sense of fairness or moral character provides the kind of long-term predictability that can help individuals cope with uncertainty (Lind, 2001). In contrast, benevolence can create an emotional attachment to the trustee, with caring and supportiveness fostering a sense of positive affect. Trust scholars have suggested that affect-based sources of trust can supplement more cognition-based sources such as ability or integrity (Flores & Solomon, 1998; Lewicki & Bunker, 1996; Lewis & Weigert, 1985; McAllister, 1995; Rousseau et al., 1998; Shapiro, Sheppard, & Cheraskin, 1992; M. Williams, 2001). In summary, our study provides the first meta-analytic summary of the relationships between ability, benevolence, integrity, and trust. We used that meta-analytic data to test the following prediction:

*Hypothesis 1a–c:* The (a) ability, (b) benevolence, and (c) integrity components of trustworthiness each have significant, unique relationships with trust.

### *Trust Propensity*

Of course, decisions about trust must often be made before enough time has passed to gather data on trustworthiness. Kee and Knox (1970) argued that trust depends not just on past experience but also on dispositional factors such as personality. Rotter (1967) was among the first to discuss trust as a form of personality, defining *interpersonal trust* as a generalized expectancy that the words or promises of others can be relied on (see also Rosenberg, 1956; Rotter, 1971, 1980). This personality-based form of trust has been referred to by other scholars as *dispositional trust* (Kramer, 1999), *generalized trust* (Stack, 1978), and *trust propensity* (Mayer et al., 1995). McKnight et al. (1998) argued that trust propensity has taken on a new importance as cross-functional teams, structural reorganizations, and joint ventures create new working relationships more frequently. After all, trust propensity is likely to be the most relevant trust antecedent in contexts involving unfamiliar actors (Bigley & Pearce, 1998).

However, an unanswered question is whether trust propensity continues to impact trust once trustworthiness has been gauged. Becker (1996) noted that trust should always be connected to “good estimates of others’ trustworthiness” (p. 47). However, Govier (1994) argued that trust propensity creates a filter that alters interpretations of others’ actions. In this way, “observations are theory-laden” (p. 244), retaining the impact of trust propensity even after trustworthiness can be inferred. Lewis and Weigert (1985) made a similar claim, arguing that information on trustworthiness

only opens the door to trust without actually constituting it. The cognitive element in trust is characterized by a cognitive “leap” beyond the expectations that reason and experience alone would warrant—they simply serve as the platform from which the leap is made. (p. 971)

Trust propensity may be the key driver of the form and shape of that leap, affecting trust even in the presence of trustworthiness information. We therefore used meta-analytic data to test the following prediction:

*Hypothesis 2:* Trust propensity is positively related to trust, controlling for ability, benevolence, and integrity.

### *Trust Consequences: Risk Taking and Job Performance*

As noted earlier, Mayer et al.’s (1995) model casts trust as the most proximal predictor of risk taking and related outcomes (see also Kee & Knox, 1970; Ross & LaCroix, 1996). Other models view trust as a proximal antecedent of a variety of job performance behaviors, including task performance, citizenship behavior, and counterproductive behavior (Dirks & Ferrin, 2002; G. R. Jones & George, 1998; M. Williams, 2001). Many of those models also predict that trust completely mediates the effects of trustworthiness and trust propensity on those outcomes (Kee & Knox, 1970; Mayer et al., 1995; Ross & LaCroix, 1996; M. Williams, 2001). From this perspective, trustworthiness and trust propensity are important only because they help inspire trust—they lack any unique or independent effects on risk taking or job performance.

Although the full mediation view represents the consensus of most trust models, that structure contradicts theorizing in the literature on social exchange. Blau (1964) distinguished between two types of exchange relationships: (a) economic exchanges, which are contractual in nature and involve the exchange of exact quantities specified in advance, and (b) social exchanges, which involve the exchange of diffuse, future obligations that are vaguely specified and occur over a more open-ended time frame. Consistent with Gouldner’s (1960) norm of reciprocity, the parties involved in social exchanges understand that a favor received in the present creates an expectation of some repayment in the future. For example, caring actions on the part of one exchange partner create a sense of indebtedness on the part of the other, which may lead to beneficial attitudes and behaviors directed toward the caring partner.

Trust concepts are a critical component of the social exchange literature in two primary respects. First, the absence of any formal contract or specified repayment schedule creates a built-in vulnerability, with one party risking the possibility that the other will fail to meet obligations. As a result, social exchange relationships cannot develop in the absence of trust (Blau, 1964). For this reason, scholars sometimes use trust levels as an indicator of the existence of a social exchange relationship (Aryee, Budhwar, & Chen, 2002; Konovsky & Pugh, 1994; Shore, Tetrick, Lynch, & Barksdale, 2006). Second, many of the facets of trustworthiness can be viewed as currencies that help create a social exchange. For example, trustworthiness facets such as demonstrating concern and support or acting based on sound principles can be viewed as actions that should engender a motivation to reciprocate on the part of an exchange partner. Thus, from a social exchange perspective,

trustworthiness inspires a social exchange relationship with trust levels acting as one indicator of that relationship.

However, a number of other constructs also serve as indicators of a social exchange relationship—constructs that could themselves act as mediators of trustworthiness–outcome relationships. For example, Meyer and Allen (1997) distinguished between *affective commitment*, which reflects a desire to remain a member of a collective because of an emotional attachment, and *continuance commitment*, which reflects an attachment based in economic investments and costs. Affective commitment indicates the existence of a social exchange relationship, whereas continuance commitment indicates the existence of an economic exchange relationship (Mowday, Porter, & Steers, 1982; Shore et al., 2006). A number of other constructs also have been described as indicators of social exchange relationships, including felt obligation, which reflects the feeling that an individual owes the exchange partner a maximum amount of energy and effort (Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001), and psychological contract fulfillment, which reflects the degree to which a party perceives that their exchange partner has fulfilled promised obligations (Ase-lage & Eisenberger, 2003; Robinson & Rousseau, 1994; Turnley, Bolino, Lester, & Bloodgood, 2003). To the extent that trustworthiness predicts outcomes through the mechanisms of affective commitment, felt obligation, psychological contract fulfillment, and so forth, the mediating role of trust will only be partial. Our review focuses specifically on the mediating role of affective commitment given that it has been included in trust studies more frequently than the other social exchange indicators.

Social exchange arguments also can be used to support direct effects for trust propensity on outcomes, even when controlling for trust. In his research on the construct, Rotter (1980) suggested that individuals with a high trust propensity would themselves act more trustworthy. That is, “high trustors” would exhibit a dispositional tendency to act in a cooperative, prosocial, and moral manner across contexts and across situations. Empirical research has tended to support this claim, as higher scores on trust propensity tend to be associated with increased honesty, increased compliance, increased help offering, and decreased cheating (Rotter, 1971, 1980; Stack, 1978; Webb & Worchel, 1986). These results suggest that high trustors may be better at building social exchange relationships because they are more prone to adhering to the norm of reciprocity (Gouldner, 1960) and are more likely to commit to the long-term protection of the exchange relationship. If so, such individuals should be capable of building a more expansive social network that could bring them the information and support needed to improve their decision making and performance (Burt, 1992; Wayne, Shore, & Liden, 1997). We therefore used meta-analytic data to test the following predictions regarding the mediating role of trust:

*Hypothesis 3a–c:* The relationships between (a) ability, (b) benevolence, (c) integrity, and risk taking and job performance are partially mediated by trust.

*Hypothesis 4:* The relationships between trust propensity and risk taking and job performance are partially mediated by trust.

*Hypothesis 5a–c:* The relationships between (a) ability, (b) benevolence, (c) integrity, and risk taking and job performance are partially mediated by affective commitment.

*Hypothesis 6:* The relationships between trust propensity and risk taking and job performance are partially mediated by affective commitment.

### *Moderators of Trust Relationships*

In the course of testing our hypotheses, our article provides a meta-analytic summary of the relationships between trust, its antecedents (ability, integrity, benevolence, trust propensity), and its consequences (risk taking, task performance, citizenship behavior, counterproductive behavior). As noted earlier, many of these relationships have never been summarized in a meta-analytic review, as Dirks and Ferrin (2002) did not include antecedents such as ability or consequences such as risk taking and counterproductive behavior. Our article also examines two moderators of trust effects: the nature of the trust measure and the referent used for trust (i.e., leader vs. coworker).

With respect to trust measurement, we examine three types of measures that have been used in assessing trust relationships. Some scholars have used scales that focus on the positive expectations component of trust (e.g., Cook & Wall, 1980; Luo, 2002; McAllister, 1995; Read, 1962; Roberts & O’Reilly, 1974). Other scholars have relied on scales that focus on the willingness-to-be-vulnerable component (e.g., Jarvenpaa et al., 1998; Mayer & Davis, 1999; Mayer & Gavin, 2005). Still other scholars have used measures that simply ask people to rate the extent to which they “trust,” referred to here as *direct measures* (e.g., Ball, Trevino, & Sims, 1993; Brockner, Siegel, Daly, Tyler, & Martin, 1997; Driscoll, 1978; Earley, 1986). The degree to which these different measures affect relationships with trust is unclear.

With respect to trust referent, some studies have focused on trust in a direct leader or the general leadership of an organization (e.g., Davis, Schoorman, Mayer, & Tan, 2000; Kirkpatrick & Locke, 1996), whereas other studies have focused on trust in one or more coworkers and colleagues (Luo, 2002; Tjosvold, Andrews, & Struthers, 1991). Mayer et al. (1995) suggested that their integrative model of trust “is applicable to a relationship with another identifiable party who is perceived to act and react with volition toward the trustor” (p. 712). However, it remains an empirical question whether trust relationships vary when that identifiable party is leader based or coworker based.

## Method

### *Literature Search*

The first step in conducting the meta-analyses used to test our hypotheses was the identification of relevant articles. We performed a literature search using the PsycINFO and Web of Science databases using *trust* as the keyword. We also obtained relevant paper presentations from recent scholarly meetings and performed a Google search to look for unpublished working papers. To be included in our meta-analyses, articles had to assess some trust-relevant variable (whether trustworthiness, trust propensity, or trust itself) and involve an adult-age sample working in a task-focused environment.

Our search uncovered 249 articles that explored a relationship between a trust-relevant variable and at least one other antecedent or consequence. We inspected those articles to ensure that they possessed codable information, meaning that they contained some zero-order effect size that could be translated into a correlation coefficient. Such translations often involved *F* statistics or *t* statistics corresponding to zero-order effects, or mean and standard deviation information across experimental conditions. However, studies that included only partial or semipartial regression coefficients, or mean data without accompanying standard deviations, were excluded. We also excluded studies that examined trust relationships at higher levels of analysis using aggregate data (e.g., Jarvenpaa et al., 1998), as it may be inappropriate to combine those data with individual level studies (Ostroff & Harrison, 1999). These and other exclusions resulted in a final set of 119 articles representing 132 independent samples. These articles are marked in the References section by an asterisk.

### Coding Procedures

Given the judgment calls inherent in meta-analyses, all coding was performed by dyads formed from the study's three authors. When a disagreement arose, the author who was not part of the dyad was brought in to discuss the coding question, though this was rarely needed. We used the definitions, synonyms, and examples from Mayer et al.'s (1995) conceptual article and Mayer and Davis's (1999) trustworthiness measure to categorize each article's variables into the ability, benevolence, and integrity categories. Table 1 summarizes this information. Variables were coded as ability if they captured trustee skills or competencies. Specific variables that were grouped into this coding category included scales designed to assess ability, like, "competence," "expertise," "knowledge," and "talent" (Mayer & Davis, 1999). Variables were categorized as integrity if they referred to the trustee's adherence to sound moral and ethical principles. Specific variables that were

grouped into this coding category included scales designed to assess integrity, like, "promise keeping," "credibility," and "procedural justice" (Mayer & Davis, 1999). Procedural justice was included because its focus on the consistency, bias suppression, and ethicality of decision making (Leventhal, 1980) matches Mayer et al.'s discussion of integrity as consistency of actions and a strong sense of justice. Procedural justice concepts also are included in three of Mayer and Davis's integrity items. Variables were coded as benevolence if they assessed the degree to which the trustee wanted to do good for the trustor. Specific variables that were grouped into this coding category included scales designed to assess benevolence, like "openness," "loyalty," "concern," and "perceived support" (Mayer & Davis, 1999). Perceived support was included because its focus on caring, valuing, showing concern, and helping the focal individual (Eisenberger et al., 2001) matches Mayer et al.'s (1995) discussion of benevolence as caring and receptivity. Perceived support concepts are also included in four of Mayer and Davis's benevolence items.

Variables were coded as trust propensity if they measured a general tendency to trust others. The most commonly used measures of trust propensity included Rotter's (1967) interpersonal trust scale, Rosenberg's (1956) faith-in-people scale, the trust facet of the NEO PI-R Agreeableness scale (Costa & McCrae, 1992), and Mayer and Davis's (1999) trust propensity scale.

With respect to trust, several studies have used positive expectations measures with exemplar items like "How confident do you feel that your superior keeps you fully and frankly informed about things that might concern you?" (Read, 1962; see also Carson, Madhok, Varman, & John, 2003; Clegg, Unsworth, Epitropaki, & Parker, 2002; Cook & Wall, 1980, Peers subscale; Luo, 2002). For the most part, these measures have assessed positive expectations in reference to the actions and behaviors of the trustee. It is important to note, however, that other positive expectations measures instead referenced expectations to the qualities and charac-

Table 1  
Coding Guidelines for Ability, Benevolence, and Integrity

Coding category	Mayer and Davis (1999) survey items	Mayer et al. (1995) synonyms
Ability: "that group of skills, competencies, and characteristics that enable a party to have influence within some specific domain" (Mayer et al., 1995, p. 717).	[The trustee] is very capable of performing [the trustee's] job. [The trustee] is known to be successful at the things [the trustee] tries to do. [The trustee] has much knowledge about the work that needs done. I feel very confident about [the trustee's] skills. [The trustee] has specialized capabilities that can increase our performance.	Competence, perceived expertise
Benevolence: "the extent to which the trustee is believed to want to do good to the trustor, aside from an egocentric profit motive" (Mayer et al., 1995, p. 718).	[The trustee] is well qualified. [The trustee] is very concerned with my welfare. My needs and desires are very important to [the trustee]. [The trustee] would not knowingly do anything to hurt me. [The trustee] really looks out for what is important to me. [The trustee] will go out of [the trustee's] way to help me. [The trustee] has a strong sense of justice.	Loyalty, openness, caring, receptivity availability
Integrity: "the perception that the trustee adheres to a set of principles that the trustor finds acceptable" (Mayer et al., 1995, p. 719).	I never have to wonder whether [the trustee] will stick to [the trustee's] word. [The trustee] tries hard to be fair in dealing with others. [The trustee's] actions and behaviors are not very consistent. I like [the trustee's] values. Sound principles seem to guide [the trustee's] behavior.	Fairness, consistency, promise fulfillment, reliability, value congruence, discretion

teristics of the trustee, thereby assessing ability, integrity, and benevolence in addition to trust (e.g., Burgoon & Hale, 1987; Cook & Wall, 1980, Management subscale; Cummings & Bromiley, 1996; Gabarro & Athos, 1976; McAllister, 1995; Mishra & Mishra, 1994). These measures were classified by Dirks and Ferrin (2002) as cognitive trust measures but had to be omitted from our trust analyses so that linkages between ability, benevolence, integrity, and trust could be tested cleanly (though we did include results for other relevant relationships from these articles). Other studies have used willingness-to-be-vulnerable measures with exemplar items like "I would be comfortable giving top management a task or problem which was critical to me, even if I could not monitor their actions" (Mayer & Davis, 1999, taken from Schoorman et al., 1996; see also Davis et al., 2000; Mayer & Gavin, 2005; Moorman, Zaltman, & Deshpande, 1992). Still other studies have used direct measures with exemplar items like "How much trust do you place in your superiors?" (Earley, 1986; see also Ball et al., 1993; Brockner et al., 1997; Driscoll, 1978; Hammer & Berman, 1981; Kirkpatrick & Locke, 1996). Finally, some studies have used measures that could not be categorized into any of the three types because they blended item styles, whereas other studies have used multiple trust scales. In the case of multiple scales, one composite was formed for the overall analysis and the multiple scales were included separately in the various breakdowns used to compare results across measure types.

Variables were coded as risk taking if they referred to a specific choice that created a behavioral manifestation of the willingness to be vulnerable (Mayer et al., 1995; Ross & LaCroix, 1996). Specific variables that were grouped into this coding category included the decision to delegate an important task, the choice to share information openly, the decision to avoid monitoring, the rejection of safeguards, and the choice to defer to a trustee.

With respect to job performance, task performance variables included objective indices of the fulfillment of job duties, along with both supervisory and self-ratings. The citizenship behavior variables included self-reports and reports by others of specific citizenship behaviors (e.g., altruism–helping, conscientiousness–compliance, sportsmanship, civic virtue, courtesy, voice) and more general scales that tap a variety of behaviors (e.g., overall organizational citizenship behavior, or OCB, OCB–individual, OCB–organizational; e.g., K. Lee & Allen, 2002; Podsakoff, MacKenzie, Moorman, & Fetter, 1990; Van Dyne & LePine, 1998; L. J. Williams & Anderson, 1991). The counterproductive behavior variables included self-reports and reports by others of specific counterproductive behaviors (e.g., disciplinary actions, making of threats, disregard of safety procedures, tardiness, absenteeism) or more general scales that tap a variety of behaviors (e.g., Bennett & Robinson, 2000; Lehman & Simpson, 1992; Robinson & O'Leary-Kelly, 1998).

We also coded variables that indicate the existence of a social exchange relationship in order to explore nontrust mediators of trustworthiness and trust propensity effects. As expected, our review indicated that constructs such as felt obligation and psychological contract fulfillment were not included in trust studies with enough frequency to be included in our meta-analyses. Affective commitment was examined with enough frequency, with the most common measures including Mowday, Steers, and Porter (1979) and Allen and Meyer (1990).

### *Meta-Analytic Calculations*

We followed Hunter and Schmidt's (2004) guidelines for meta-analysis. Our meta-analytic results include a weighted mean estimate of the study correlations ( $r$ ), calculated by weighing each study's correlation by its sample size. The statistical significance of those correlations is judged using a 95% confidence interval constructed around the point estimate (Whitener, 1990). We also report the value for those correlations after correcting for unreliability ( $r_c$ ). Those corrections were performed using the reliability information provided in each article. For studies that did not report reliability information, we used the weighted mean reliability obtained from those studies that did report data for that variable.

In addition to providing calculations of uncorrected and corrected weighted mean correlations, meta-analysis can provide an estimate of the variability in the correlations. Our results include the standard deviation of the corrected meta-analytic correlation ( $SDr_c$ ), which provides an index of the variation in study results for a given relationship. We also report the percentage of variance explained by artifacts ( $V_{art}$ ), which captures the extent to which variation in study results is caused by sampling error, unreliability, and other study artifacts. In cases in which the variance explained by artifacts is low, Hunter and Schmidt (2004) argued that moderator variables must be responsible for the variation in effect sizes across studies. More specifically, Hunter and Schmidt suggested that moderators are likely present if study artifacts fail to account for 75% of the variance in the meta-analytic correlations.

## Results

### *Meta-Analytic Summary of Trust Antecedents and Consequences*

Table 2 presents the meta-analytic results for the relationships between trust and its antecedents and consequences. With respect to the antecedents, ability ( $r_c = .67$ ), benevolence ( $r_c = .63$ ), and integrity ( $r_c = .62$ ) were all strongly related to trust levels with cumulative number of subjects ranging from 3,326 to 7,284. In contrast, trust propensity ( $r_c = .27$ ) exhibited a more moderate relationship with a cumulative number of subjects of 1,514. The 95% confidence intervals excluded zero for all four relationships. With respect to the consequences, trust was moderately to strongly related to risk taking ( $r_c = .42$ ,  $N = 1,384$ ). Trust also was moderately related to all three job performance dimensions: task performance ( $r_c = .33$ ,  $N = 4,882$ ), citizenship behavior ( $r_c = .27$ ,  $N = 4,050$ ), and counterproductive behavior ( $r_c = -.33$ ,  $N = 2,088$ ). Note that objective measures of task performance ( $r_c = .31$ ,  $N = 1,068$ ) yielded similar results to supervisory ratings of performance ( $r_c = .30$ ,  $N = 1,744$ ) and self-ratings of performance ( $r_c = .36$ ,  $N = 2,070$ ). Other-rated versus self-rated assessment also had little effect on the citizenship behavior results ( $r_c = .23$ ,  $N = 2,002$  for other rated;  $r_c = .31$ ,  $N = 2,048$  for self-rated) and the counterproductive behavior results ( $r_c = -.29$ ,  $N = 842$  for other rated;  $r_c = -.35$ ,  $N = 1,353$  for self-rated).

Table 3 summarizes how the relationships between trust and its antecedents and consequences vary by type of measure. The breakdowns suggest that the type of trust measure had little influence on the magnitude of the trust relationships, as the 95% confidence intervals overlapped in most cases. The exception was for direct

Table 2  
*Meta-Analytic Summary of Trust Antecedents and Consequences*

Variable	<i>r</i>	95% CI	<i>r<sub>c</sub></i>	<i>SDr<sub>c</sub></i>	<i>k</i>	<i>N</i>	<i>V<sub>art</sub></i> (%)
Trust antecedents							
Ability	.55	.51, .59	.67	.19	18	3,885	9.7
Benevolence	.52	.47, .56	.63	.20	20	3,326	11.9
Integrity	.53	.48, .58	.62	.30	35	7,284	3.9
Trust propensity	.20	.14, .25	.27	.14	10	1,514	58.7
Trust consequences							
Risk-taking behaviors	.34	.28, .39	.42	.22	13	1,384	25.0
Task performance	.26	.21, .31	.33	.28	27	4,882	8.8
Citizenship behavior	.22	.19, .25	.27	.14	19	4,050	38.6
Counterproductive behavior	-.26	-.30, -.22	-.33	.08	10	2,088	92.7

Note. *r* = uncorrected meta-analytic correlation; CI = confidence interval; *r<sub>c</sub>* = corrected meta-analytic correlation; *SDr<sub>c</sub>* = standard deviation of corrected meta-analytic correlation; *k* = number of independent samples; *N* = cumulative sample size; *V<sub>art</sub>* = percentage of variance in *r<sub>c</sub>* explained by study artifacts.

measures, where relationships with benevolence were somewhat stronger and relationships with integrity were somewhat weaker.

Table 4 summarizes how the relationships between trust and its antecedents and consequences vary by trust referent. The breakdowns suggest that trust referent had little influence on the magnitude of the trust relationships, as the 95% confidence intervals overlapped in most cases. The exception was for the relationship between integrity and trust, where leader referents resulted in stronger correlations than coworker referents.

### Tests of Hypotheses

Hypotheses 1a–c predicted that ability, benevolence, and integrity each have unique relationships with trust, controlling for one another. Meta-analytic structural equation modeling was used to test this hypothesis given that appropriate testing involves regression weights rather than zero-order correlations (Viswesvaran & Ones, 1995). We first constructed the meta-analytic correlation matrix shown in Table 5. Because the two moderators we examined, type of measure and trust referent, did not significantly impact the trust correlations, we used the overall correlations in constructing Table 5. We then entered that meta-analytic correlation matrix into a structural equation modeling analysis using LISREL (Version 8.52; Jöreskog & Sörbom, 1996). Given that the sample sizes differed across the various cells of the matrix, we used the harmonic mean sample size to compute standard errors (Viswesvaran & Ones, 1995). The harmonic mean is calculated by the formula  $[k/(1/N_1 + 1/N_2 + \dots + 1/N_k)]$ , where *N* refers to sample size and *k* refers to the total number of samples. Use of the harmonic mean results in more conservative estimates, as less weight is given to large samples. The left side of Figure 1 reveals the results for Hypotheses 1a–c. All three coefficients were significant, supporting the hypotheses, with the ability relationship ( $\beta = .39$ ) and benevolence relationship ( $\beta = .26$ ) moderate in magnitude and the integrity relationship ( $\beta = .15$ ) weaker in magnitude.

Hypothesis 2 predicted that trust propensity is positively related to trust, controlling for ability, benevolence, and integrity. The left side of Figure 1 also reveals the result for this hypothesis. In support of the hypothesis, trust propensity remained a significant predictor of trust even when the trustworthiness forms were con-

sidered simultaneously. However, the magnitude of the relationship was relatively weak ( $\beta = .12$ ).

Hypotheses 3a–c predicted that the relationships between ability, benevolence, integrity, and the outcomes are partially mediated by trust. Hypothesis 4 made the same partial mediation prediction for trust propensity. In testing these hypotheses, we compared the fit of a full mediation model with a partial mediation model. The full mediation model is shown in Figure 1, with the antecedent relationships reviewed in the prior paragraphs supplemented by the outcome relationships from Table 2. In testing the fit of the model in Figure 1, we allowed the error terms for task performance, citizenship behavior, and counterproductive behavior to covary in order to reflect their common core of job performance (Rotundo & Sackett, 2002). The results revealed an acceptable level of fit for the full mediation structure,  $\chi^2(19, N = 1,204) = 306.15, p < .001$ ; CFI = .95; SRMR = .07. Acceptable model fit typically is inferred when CFI is above .90 and SRMR is below .10 (Kline, 2005).

The partial mediation model is shown in Figure 2, which adds direct paths between the four trust antecedents and the four outcomes. The error terms for task performance, citizenship behavior, and counterproductive behavior again were allowed to covary. The results revealed a better fit for the partial mediation structure,  $\chi^2(3, N = 1,204) = 120.60, p < .001$ ; CFI = .98; SRMR = .05. The significance of the improvement in model fit can be judged using a chi-square difference test, and the difference in chi-square ( $306.15 - 120.60 = 185.55$ ) was statistically significant with  $(19 - 3 = 16)$  degrees of freedom ( $p < .001$ ). This improvement in fit supports the view that trust is only a partial mediator of the relationships between the trust antecedents and the outcomes.

Support for Hypotheses 3 and 4 also can be seen when examining the path coefficients in Figure 2. When risk taking was regressed on trust and its antecedents simultaneously, trust remained a significant predictor ( $\beta = .25$ ). However, ability ( $\beta = .12$ ) and integrity ( $\beta = .15$ ) had significant relationships independent of trust, illustrating that trust did not completely mediate their effects. A similar pattern occurred for task performance. When task performance was regressed on trust and its antecedents simultaneously, trust remained a significant predictor ( $\beta = .38$ ). However, trust propensity ( $\beta = .07$ ) and integrity ( $\beta = -.12$ ) also had

Table 3  
*Type of Trust Measure as a Moderator of Trust Relationships*

Trust measure type	<i>r</i>	95% CI	<i>r<sub>c</sub></i>	<i>SDr<sub>c</sub></i>	<i>k</i>	<i>N</i>	<i>V<sub>art</sub></i> (%)
Trust antecedents							
Ability							
Positive expectations	.48	.41, .55	.59	.27	7	918	9.4
Willingness to be vulnerable	.56	.52, .60	.69	.17	10	2,830	8.8
Direct	.55	.49, .61	.65	.17	5	722	17.5
Benevolence							
Positive expectations	.49	.44, .53	.59	.15	11	1,699	26.0
Willingness to be vulnerable	.54	.48, .60	.67	.27	7	1,516	5.0
Direct	.69	.62, .75	.79	.12	4	347	32.5
Integrity							
Positive expectations	.62	.59, .65	.69	.14	18	3,501	14.0
Willingness to be vulnerable	.62	.58, .66	.76	.17	9	2,030	9.4
Direct	.51	.46, .56	.62	.24	10	1,691	8.5
Trust propensity							
Positive expectations	.20	.11, .28	.26	.11	4	596	94.0
Willingness to be vulnerable	.18	.10, .26	.25	.09	4	673	100.0
Direct	.16	.09, .24	.22	.13	5	699	86.2
Trust consequences							
Risk-taking behaviors							
Positive expectations	.30	.21, .38	.39	.13	4	567	60.0
Willingness to be vulnerable	.32	.20, .43	.39	.25	2	369	12.0
Direct	.15	.05, .26	.20	.07	3	409	100.0
Task performance							
Positive expectations	.22	.16, .28	.25	.20	13	1,645	27.4
Willingness to be vulnerable	.21	.15, .27	.26	.15	7	1,199	35.4
Direct	.17	.10, .24	.20	.21	6	917	20.5
Citizenship behavior							
Positive expectations	.23	.18, .27	.28	.15	14	2,335	37.0
Willingness to be vulnerable	.19	.14, .24	.24	.02	5	1,572	100.0
Direct	.23	.13, .34	.28	.22	3	469	17.0
Counterproductive behavior							
Positive expectations	-.24	-.32, -.16	-.27	.16	5	624	39.9
Willingness to be vulnerable	-.18	-.11, -.20	-.26	.10	4	623	100.0
Direct	-.22	-.32, -.13	-.26	.11	4	487	89.7

*Note.* *r* = uncorrected meta-analytic correlation; CI = confidence interval; *r<sub>c</sub>* = corrected meta-analytic correlation; *SDr<sub>c</sub>* = standard deviation of corrected meta-analytic correlation; *k* = number of independent samples; *N* = cumulative sample size; *V<sub>art</sub>* = percentage of variance in *r<sub>c</sub>* explained by study artifacts.

smaller, unique relationships (note that the negative coefficient for integrity may be an artifact of the high multicollinearity among the trustworthiness facets). A similar pattern also occurred for counterproductive behavior. When counterproductive behavior was regressed on trust and its antecedents simultaneously, trust remained a significant predictor ( $\beta = -.25$ ). However, trust propensity ( $\beta = -.19$ ), benevolence ( $\beta = -.10$ ), and ability ( $\beta = .11$ ) also had smaller, unique relationships (note again that the positive coefficient for ability may be an artifact of high multicollinearity). Taken together, these results reveal that trust mediates much, but not all, of the relationships between the trust antecedents and those three outcomes.

A different pattern of results is observed for citizenship behavior, however. When citizenship behavior was regressed on trust and its antecedents simultaneously, trust remained a significant predictor ( $\beta = .11$ ). However, ability ( $\beta = .18$ ) and trust propensity ( $\beta = .10$ ) also had significant, unique relationships with citizenship, and the magnitude of those relationships was similar to (or slightly stronger than) the trust effect. This result suggests that

trust only mediates a fraction of the relationships between ability, trust propensity, and citizenship behavior. In sum, our tests of Hypotheses 3 and 4 suggest that trust does mediate the relationships between trustworthiness, trust propensity, and the outcomes, but the mediation is only partial, as many of the antecedents possessed unique relationships with the outcomes.

Hypotheses 5 and 6 entailed an attempt to explain that partial mediation by examining affective commitment as another mediator of trustworthiness and trust propensity effects. Recall that trust was expected to mediate the effects of those antecedents because it serves as an indicator that a social exchange relationship has developed. However, trust is not the only construct that indicates a social exchange relationship, as affective commitment also serves as evidence of such a relationship. Table 5 includes the correlations between affective commitment and the other variables in our models. Figure 3 depicts affective commitment as an additional mediator for trustworthiness and trust propensity effects. We allowed the errors to covary for trust and affective commitment to reflect a reciprocal association among the two social exchange

Table 4  
Trust Referent as a Moderator of Trust Relationships

Trust referent	<i>r</i>	95% CI	<i>r<sub>c</sub></i>	<i>SDr<sub>c</sub></i>	<i>k</i>	<i>N</i>	<i>V<sub>art</sub></i> (%)
Trust antecedents							
Ability							
Coworker-based referent	.52	.46, .58	.62	.24	5	1,299	5.7
Leader-based referent	.55	.51, .59	.68	.17	11	2,122	14.5
Benevolence							
Coworker-based referent	.41	.33, .50	.51	.17	4	501	28.9
Leader-based referent	.51	.46, .55	.63	.20	15	2,566	12.7
Integrity							
Coworker-based referent	.11	.01, .22	.13	.48	4	897	2.8
Leader-based referent	.58	.54, .61	.67	.18	30	6,128	9.5
Trust propensity							
Coworker-based referent	.28	.20, .36	.37	.13	4	622	56.8
Leader-based referent	.15	.07, .23	.21	.11	5	633	100.0
Trust consequences							
Risk-taking behaviors							
Coworker-based referent	.32	.25, .40	.39	.20	6	730	25.5
Leader-based referent	.28	.17, .39	.37	.30	6	395	26.8
Task performance							
Coworker-based referent	.30	.24, .36	.39	.31	10	2,327	5.4
Leader-based referent	.22	.17, .27	.26	.09	16	2,495	16.5
Citizenship behavior							
Coworker-based referent	.23	.12, .33	.27	.20	4	446	33.1
Leader-based referent	.22	.19, .26	.27	.12	12	3,002	40.2
Counterproductive behavior							
Coworker-based referent	-.24	-.31, -.17	-.33	.09	3	838	63.5
Leader-based referent	-.26	-.31, -.21	-.32	.09	8	1,357	100.0

Note. *r* = uncorrected meta-analytic correlation; CI = confidence interval; *r<sub>c</sub>* = corrected meta-analytic correlation; *SDr<sub>c</sub>* = standard deviation of corrected meta-analytic correlation; *k* = number of independent samples; *N* = cumulative sample size; *V<sub>art</sub>* = percentage of variance in *r<sub>c</sub>* explained by study artifacts.

indicators. The results revealed an adequate fit to the data,  $\chi^2(3, N = 1,319) = 154.59, p < .001$ ; CFI = .98; SRMR = .05, and Figure 3 shows that ability ( $\beta = .22$ ), benevolence ( $\beta = .20$ ), and integrity ( $\beta = .22$ ) were significantly and uniquely related to affective commitment, though trust propensity did not yield as large of an effect ( $\beta = .05$ ). Affective commitment also was uniquely related to the outcomes, particularly citizenship behavior ( $\beta = .18$ ) and counterproductive behavior ( $\beta = -.39$ ). However, many of the direct effects of trustworthiness on the four outcomes remained significant, even with affective commitment as an additional mediator. The exception was the relationship between benevolence and counterproductive behavior, which became nonsignificant with affective commitment controlled.

### Discussion

Mayer et al.'s (1995) integrative model and Rousseau et al.'s (1998) cross-discipline review helped clarify the conceptual distinctions among trust, trustworthiness, and trust propensity. Mayer et al. also introduced a three-factor conceptualization of trustworthiness and cast trust as the most proximal predictor of risk taking and other behavioral outcomes. Although the conceptual contributions of these articles are notable, a number of critical questions remain a decade later. These questions center on the unique effects of ability, benevolence, and integrity on trust; the mediating role of trust in explaining the relationships between trustworthiness, trust

propensity, and behavioral outcomes; and the effects of trust measurement and trust referent on relationships with antecedents and consequences. Although the trust literature previously has been subject to a meta-analysis, Dirks and Ferrin's (2002) review did not speak to these specific questions because their conceptualization of trust was an aggregate of trust and trustworthiness in a Mayer et al. sense. In addition, their review focused specifically on leader-based referents and did not include variables such as ability and risk taking. Our meta-analyses therefore complement Dirks and Ferrin's (2002) review, and our results offer a number of theoretical, measurement, and practical implications.

### Theoretical Implications

Lewis and Weigert (1985) suggested that trust is based on "good reasons" constituting evidence of trustworthiness" (p. 970). Although Mayer et al. (1995) defined those "good reasons" in terms of ability, benevolence, and integrity, some studies have failed to demonstrate significant, unique effects for all three dimensions when predicting trust (Jarvenpaa et al., 1998; Mayer & Gavin, 2005), and the trustworthiness dimensions often are highly correlated. Moreover, some conceptualizations of trustworthiness combine benevolence and integrity into a single character variable (Gabarro, 1978), suggesting that those two dimensions might be redundant with each other. Our results support the importance of all three trustworthiness dimensions, as all three had significant,

Table 5  
Corrected Meta-Analytic Intercorrelations Between Study Variables

Variable	1	2	3	4	5	6	7	8	9
1. Ability	—								
2. Benevolence	.62* (11, 2062)	—							
3. Integrity	.66* (14, 3269)	.68* (21, 5837)	—						
4. Trust propensity	.15* (5, 782)	.20* (9, 1688)	.29* (10, 1368)	—					
5. Trust	.67* (18, 3885)	.63* (20, 3326)	.62* (35, 7284)	.27* (10, 1514)	—				
6. Risk taking	.38* (7, 1420)	.32* (5, 675)	.38* (7, 1307)	.15* (8, 1460)	.42* (13, 1384)	—			
7. Task performance	.18* (11, 1543)	.19* (11, 3511)	.14* (16, 3980)	.14* (11, 1678)	.33* (27, 4882)	.28* (3, 455)	—		
8. Citizenship behavior	.28* (6, 967)	.23* (13, 5231)	.22* (16, 5051)	.16* (8, 1322)	.27* (19, 4050)	.34* (2, 345)	.54* (14, 4015)	—	
9. Counterproductive behavior	-.19* (5, 812)	-.27* (6, 859)	-.27* (14, 2504)	-.28* (4, 536)	-.33* (10, 2088)	-.35* (2, 222)	-.27* (15, 3312)	-.39* (7, 1079)	—
10. Affective commitment	.50* (7, 1711)	.50* (13, 4792)	.52* (24, 5116)	.19* (6, 1214)	.54* (32, 7066)	.22* (5, 762)	.22* (14, 3741)	.29* (14, 3711)	-.45* (12, 2527)

Note. The number of independent samples (*k*) and cumulative sample sizes (*N*), respectively, are provided in parentheses.  
\* *p* < .05.

unique relationships with trust. One explanation for those unique relationships may be that the trustworthiness dimensions reflect both cognition-based and affect-based sources of trust (Flores & Solomon, 1998; Lewicki & Bunker, 1996; Lewis & Weigert, 1985; McAllister, 1995, 1997; Rousseau et al., 1998; Shapiro et al., 1992). For example, a cognitive calculation of the skills, capabilities, values, and principles of the trustee (in the forms of ability and integrity) may be supplemented by a more affective acknowledgment of the mutual concern inherent in the relationship (in the form of benevolence).

Of course, trust often requires a leap beyond the expectations that ability, benevolence, and integrity can inspire (Lewis & Weigert, 1985). Trust propensity may drive that leap (Mayer et al., 1995; Rosenberg, 1956; Rotter, 1967; Stack, 1978), as our results showed that propensity was related to trust on both a zero-order basis and when trustworthiness was considered simultaneously. It also is worth noting that propensity was significantly related to all three trustworthiness facets. If propensity were to be viewed as an antecedent of trustworthiness perceptions (by changing the curved arrows in the figures into direct paths to ability, benevolence, and integrity), it would have significant indirect effects on trust to go along with its significant direct effect. That sort of structure is consistent with some models in the literature (Kee & Knox, 1970; McKnight et al., 1998; Ross & LaCroix, 1996) and matches Govier's (1994) view that "observations are theory-laden," with trusting parties perceiving more good reasons to trust (p. 244).

In addition to exploring trust antecedents, our study examined the specific behaviors that trust can be used to predict. Most important, we tested Mayer et al.'s (1995) fundamental assumption that trust fosters risk taking—that an intention to accept vulnerability actually results in a decision to become vulnerable (see also Kee & Knox, 1970; Ross & LaCroix, 1996). Our results revealed moderately strong relationships between trust and risk taking. Moreover, our results revealed moderately strong relationships between trust and the three facets of job performance, as individuals who are willing to trust others tend to engage in better task performance, perform more citizenship behaviors, and commit fewer counterproductive behaviors. Taken together, these sorts of results reinforce the view that trust is a vital component of effective working relationships (Lind, 2001; Tyler & Lind, 1992).

Our results also showed that trust benefits relationships with both leaders and coworkers. On the one hand, Mayer et al.'s (1995) integrative model de-emphasized the importance of different kinds of trust referents, focusing instead on any identifiable party who acts with volition toward the trustor. On the other hand, scholars have treated trust in leadership as a distinct phenomenon, as evidenced by Dirks and Ferrin's (2002) exclusive focus on trust in leadership. Our results showed that, in general, the relationships between trust and its antecedents and consequences did not vary across leader-based and coworker-based referents. The one exception was the relationship between integrity and trust, which was significantly stronger for leader-based referents. It may be that issues of fairness, consistency, promise fulfillment, and so forth are more salient in relationships with an obvious power differential.

Finally, our study explored the question "Are trustworthiness and trust propensity important only because they inspire trust?" Mayer et al. (1995) suggested that trust completely mediates the relationships between trustworthiness or trust propensity and out-

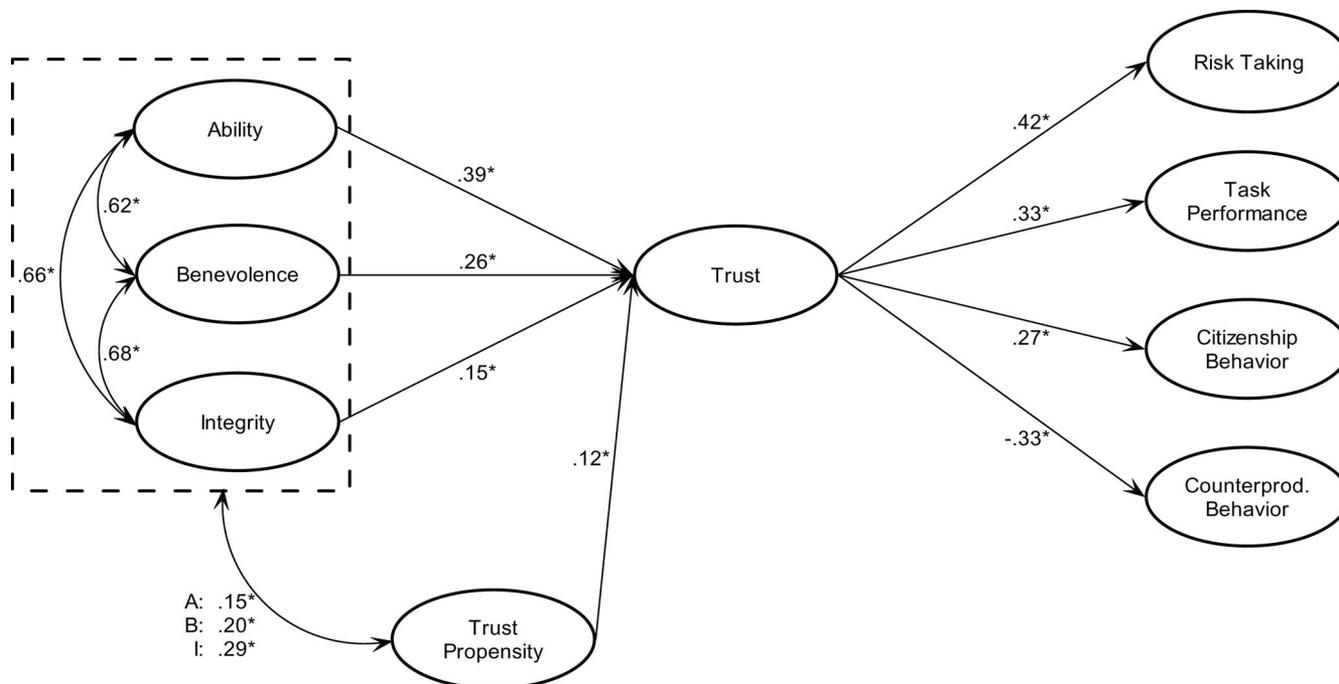


Figure 1. Full mediation model.  $N = 1,204$ . Counterprod. = counterproductive; A = ability relationship; B = benevolence relationship; I = integrity relationship. \* $p < .05$ .

comes (see also Kee & Knox, 1970; Ross & LaCroix, 1996; M. Williams, 2001). Our results suggest that trustworthiness and trust propensity may be important even aside from their trust-fostering role, in two respects. First, ability, benevolence, integrity, and trust propensity had significant, unique relationships with behavioral outcomes even when trust was considered simultaneously. For example, integrity had incremental effects on risk taking, and benevolence had incremental effects on counterproductive behaviors. Ability had incremental effects on both risk taking and citizenship behavior, and trust propensity had incremental effects on both citizenship behavior and counterproductive behavior.

Second, ability, benevolence, and integrity were significant predictors of affective commitment, not just trust. We had reasoned that trustworthiness and trust propensity might have independent relationships with the outcomes when controlling for trust because they can engender a social exchange relationship. Trust can act as a partial indicator of that social exchange relationship (Aryee et al., 2002; Konovsky & Pugh, 1994; Shore et al., 2006), but other constructs—like affective commitment—can serve a similar function (Mowday et al., 1982; Shore et al., 2006). Our results showed that affective commitment was a significant predictor of citizenship behavior and counterproductive behavior when controlling for trust. From this perspective, trustworthiness may have a dual importance—predicting behaviors through the mechanisms of both trust and affective commitment.

Although affective commitment provided an additional mediator for the effects of trustworthiness and trust propensity, it must be noted that the trust antecedents had incremental effects on the outcomes even when both mediators were controlled. We suspect these remaining direct effects point to the importance of still other social exchange indicators, such as felt obligation (Eisenberger et

al., 2001) and psychological contract fulfillment (Aselage & Eisenberger, 2003; Robinson & Rousseau, 1994; Turnley et al., 2003). Unfortunately, these indicators have not been included in trust studies with enough frequency to be included in our analyses, though both offer useful directions for future research. Alternatively, it may be that demonstrating complete mediation for trustworthiness and trust propensity requires a more comprehensive or direct approach to operationalizing the social exchange phenomenon. For example, Shore et al. (2006) validated a scale that reflects multiple facets of social exchange relationships, including the trust within the relationship, the investment between the two parties, the duration of the exchange, and the socioemotional (as opposed to financial) focus of the exchange. It may be that this sort of measure would fully mediate trustworthiness and trust propensity effects because the full spectrum of exchange concepts is being captured.

### Measurement Implications

In addition to the theoretical implications we have described, our article has a number of implications for measurement within the trust literature. For example, our results revealed high intercorrelations between the ability, benevolence, and integrity dimensions. Although the three dimensions still had significant, unique relationships with trust and affective commitment, such high intercorrelations could lead to unstable regression weights, particularly in primary studies with modest sample sizes. Indeed, we suspect that the multicollinearity among the ability, benevolence, and integrity dimensions was responsible for the small regression weights in Figures 2 and 3 that were opposite in sign from the zero-order correlations. Mayer et al. (1995) provided compelling

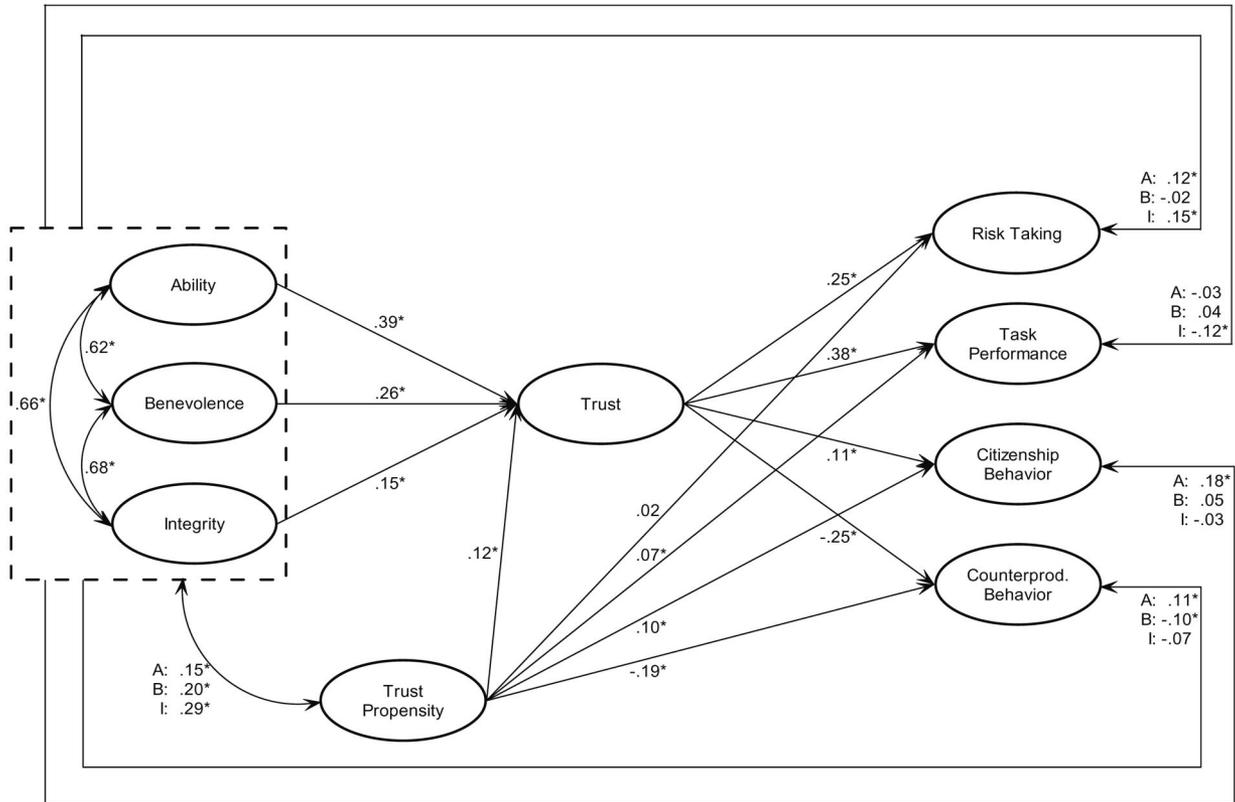


Figure 2. Partial mediation model.  $N = 1,204$ . A = ability relationship; B = benevolence relationship; I = integrity relationship; Counterprod. = counterproductive. \* $p < .05$ .

conceptual evidence for the distinctions among the three trustworthiness factors. It may be that those conceptual distinctions are more difficult to maintain in the minds of survey respondents who fill out scales like Mayer and Davis's (1999). Alternatively, it may be that there is overlap between the trustworthiness dimensions that could be clarified further at both a conceptual and operational level. For example, demonstrating caring and concern is a facet of benevolence, whereas a strong sense of justice is a facet of integrity (Mayer & Davis, 1999; Mayer et al., 1995). However, scholars in the organizational justice literature view caring and concern as a facet of "interactional justice" (Bies & Moag, 1986), suggesting a blurring of the benevolence-integrity boundary.

Other measurement implications can be derived from our analyses of trust measurement approach as a moderator of trust relationships. Specifically, our results showed that the relationships between trust and its antecedents and consequences did not vary significantly across measures based on the positive expectations or willingness-to-be-vulnerable components of trust definitions (Mayer et al., 1995; Rousseau et al., 1998) or across direct measures that explicitly use the word *trust*. The fact that measurement approach did not appear to be a significant moderator suggests that it may not matter in what sense one trusts. There are two reasons why that contention should be viewed with caution, however. First, we had to exclude some commonly used trust measures from our review because they explicitly measured positive expectations in reference to ability, benevolence, or integrity rather than the ac-

tions of the trustee (e.g., Burgoon & Hale, 1987; Cook & Wall, 1980, Management subscale; Cummings & Bromiley, 1996; Gabarro & Athos, 1976; McAllister, 1995; Mishra & Mishra, 1994). Second, the most rigorous test of trust measurement effects would involve including positive expectations, willingness to be vulnerable, and direct measures in a single study to see how their zero-order and unique relationships differ from one another. Unfortunately, the inclusion of multiple types of scales in a single study remains extremely rare.

Limitations

This study has some limitations that should be noted. First, like any meta-analysis, it subsumes the limitations of the studies on which it is built. For example, many of the studies included in our review yielded correlations that could have been inflated by same-source bias, inflation that also would impact our meta-analytic correlations. Similarly, many of the studies included in our review used a cross-sectional correlational design, preventing us from establishing causal direction in our analyses. This limitation is particularly relevant to our mediation analyses, given that the term *mediation* presumes a specific causal direction (Stone-Romero & Rosopa, 2004). Also, our analyses examined only the main effects of trustworthiness, trust propensity, and trust. Mayer et al.'s (1995) model argued that trust propensity could moderate the effects of trustworthiness on trust. Unfortunately, meta-analytic structural

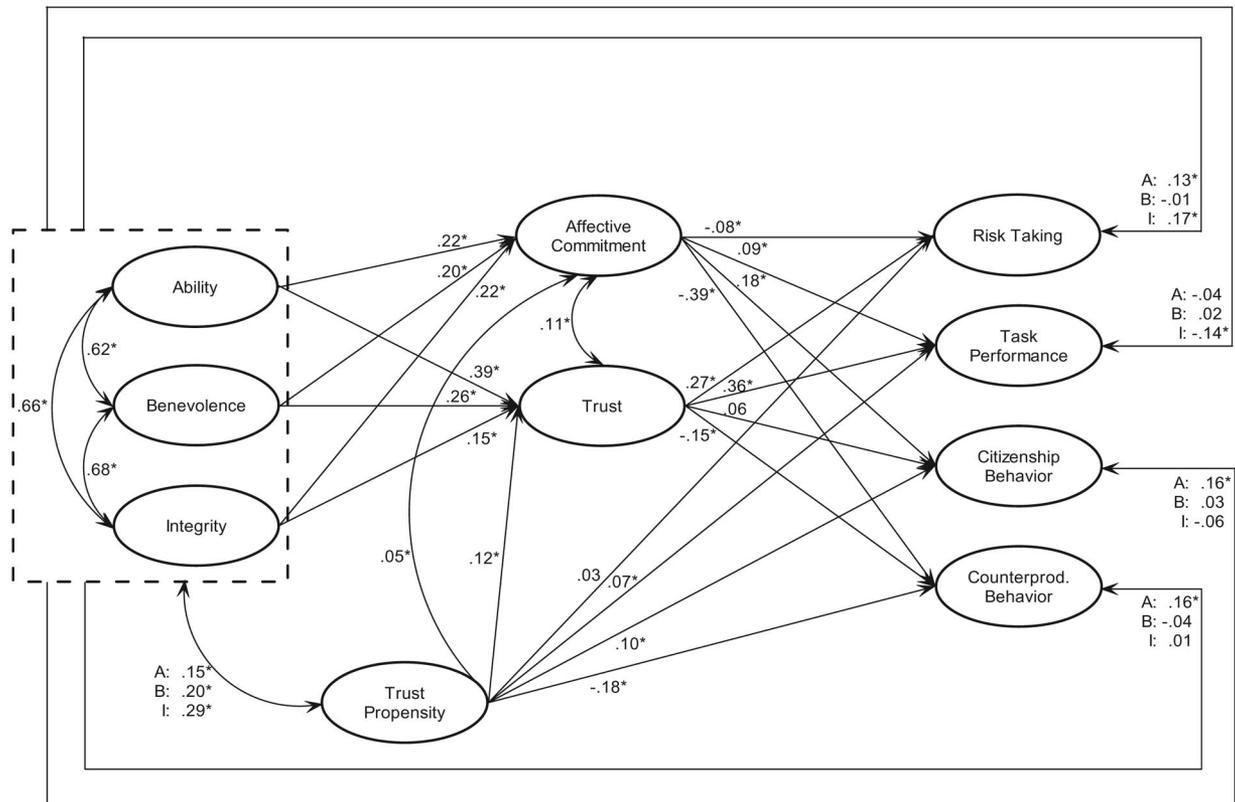


Figure 3. Partial mediation model with affective commitment. A = ability relationship; B = benevolence relationship; I = integrity relationship; Counterprod. = counterproductive.  $N = 1,319$ .  $*p < .05$ .

equation modeling is ill suited to examining such effects because it requires the reporting of zero-order effect sizes in the studies. Authors would need to report the zero-order correlations with moderated regression product terms in order for interactive effects to be explored.

### Suggestions for Future Research

Despite these limitations, our quantitative review offers a number of suggestions for future research. For example, trust scholars have neglected to examine whether the importance of the three trustworthiness facets varies across jobs. Ability may be a stronger predictor in jobs that require frequent learning or technical competence (Schmidt & Hunter, 2000). Benevolence and integrity may be stronger predictors in jobs where task interdependence necessitates frequent interactions (Wageman, 2001). Although our review could not test those specific suggestions, we did explore breakdowns of the trustworthiness–trust relationships for the field studies included in our review using manufacturing, service, and managerial job categories. The number of studies in those breakdowns proved to be too small to draw any firm conclusions, but some differences do seem worthy of further investigation. For example, ability seemed to be a more significant predictor of trust in manufacturing jobs than in managerial jobs, with service jobs only appearing in a single study ( $r = .64$  [.57, .70],  $k = 2$ ,  $N = 415$  for manufacturing;  $r = .41$  [.28, .54],  $k = 3$ ,  $N = 284$  for managerial;  $r = .56$  [.48, .64],  $k = 1$ ,  $N = 381$  for service).

Similarly, benevolence seemed to be a more significant predictor of trust in manufacturing and service jobs than in managerial jobs ( $r = .62$  [.56, .68],  $k = 3$ ,  $N = 493$  for manufacturing;  $r = .29$  [.09, .49],  $k = 2$ ,  $N = 175$  for managerial;  $r = .46$  [.40, .52],  $k = 3$ ,  $N = 897$  for service).

In contrast to the ability and benevolence results, integrity seemed to be a more significant predictor of trust in managerial and service jobs than in manufacturing jobs ( $r = .30$  [.21, .29],  $k = 7$ ,  $N = 1,793$  for manufacturing;  $r = .65$  [.49, .81],  $k = 2$ ,  $N = 141$  for managerial;  $r = .62$  [.57, .66],  $k = 5$ ,  $N = 899$  for service). The result for managerial jobs complements our finding that the integrity–trust relationship was significantly stronger for leader-based trust referents than for coworker-based trust referents (see Table 4). It seems that the qualities associated with integrity, such as reliability, promise fulfillment, and fairness, become even more important in cases in which authority dynamics are particularly salient. Lind (2001) argued that issues such as fairness and ethicality are especially critical in authority-based contexts because the risk of exploitation is apparent. Future research should attempt to replicate the integrity effects reported here while identifying the mechanisms that could explain such differences.

Other suggestions for future research center on how employees react to trust in multiple authorities. As Mayer and Gavin (2005) illustrated in their study of trust in plant managers and top management teams, employees trust multiple authorities at a given time. Dirks and Ferrin's (2002) review revealed that trust in one's

direct leader had a stronger effect on task performance and citizenship behavior than trust in organizational leadership. Our results show a similar pattern for citizenship behavior, though the number of studies is too small to identify significant differences ( $r = .24$  [.20, .28],  $k = 10$ ,  $N = 2,651$  for direct leader;  $r = .13$  [.01, .25],  $k = 2$ ,  $N = 351$  for organizational leadership). However, our breakdowns for task performance ( $r = .19$  [.14, .25],  $k = 12$ ,  $N = 1,979$  for direct leader;  $r = .31$  [.22, .41],  $k = 4$ ,  $N = 516$  for organizational leadership), risk taking ( $r = .23$  [.06, .39],  $k = 4$ ,  $N = 222$  for direct leader;  $r = .35$  [.15, .54],  $k = 2$ ,  $N = 173$  for organizational leadership), and counterproductive behavior ( $r = -.25$  [-.31, -.20],  $k = 7$ ,  $N = 1,253$  for direct leader;  $r = -.36$  [-.87, .15],  $k = 1$ ,  $N = 104$  for organizational leadership) revealed the opposite pattern, with trust in organizational leadership more strongly related to these outcomes, though the confidence intervals overlapped in all cases. Future research should continue to explore such differences while also examining the unique effects of multiple trust referents on employee reactions.

### Practical Implications

Our article also offers a number of practical implications. First and foremost, our results underscore the practical benefits of fostering trust in the workplace. The relationship between trust and job performance was as strong as or stronger than relationships with other attitudes such as job satisfaction (Judge, Thoreson, Bono, & Patton, 2001). Trust also predicted risk taking, which is vital in many jobs where formal or legalistic controls do not protect exchange partners (Hardin, 1996; Sitkin & Roth, 1993). Trust also predicted counterproductive behaviors, which can prove quite costly to organizations even when the base rates for committing them remain low (Sackett & DeVore, 2001). In addition, trust was positively correlated with affective commitment, a significant predictor of both absenteeism and turnover (Meyer, Stanley, Herscovitch, & Topolnysky, 2002).

Given the importance of trust to key organizational outcomes, our trustworthiness results can provide a guide for increasing trust in organizations. Ability, benevolence, and integrity provide three distinct avenues for fostering trust, as all three were highly correlated with trust and all three had significant, unique relationships with it. The ability results reinforce the importance of recruitment and selection strategies geared toward maximizing general abilities and training strategies targeted at building task-specific expertise (Arthur, Bennett, Edens, & Bell, 2003; Rynes, 1991). With respect to benevolence and integrity, coworker-based relationships could benefit from building such content into team-building programs. Although the long-term benefits of such programs are open to debate (Salas, Rozell, Mullen, & Driskell, 1999), their effectiveness may be enhanced if they are focused specifically on trustworthiness antecedents. Leader-based relationships potentially could benefit from incorporating trustworthiness drivers into leader training. Skarlicki and Latham (1996) demonstrated that leaders could be trained to act in a more fair and ethical manner. Training geared toward improving the facets of integrity could be particularly effective given the importance of integrity in leader-based relationships.

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