

# Measuring Trust between Organizational Boundary Role Persons

STEVEN C. CURRALL

*Jones Graduate School of Administration, Rice University*

AND

TIMOTHY A. JUDGE<sup>1</sup>

*Center for Advanced Human Resource Studies, Cornell University*

---

**Theoretical writings on trust and interorganizational collaboration have neglected the measurement aspects of trust. Defining trust as *an individual's behavioral reliance on another person under a condition of risk*, we developed and tested the construct validity of a questionnaire measure that assessed trust between the individuals who provide the linking mechanism across organizational boundaries, namely, boundary role persons (BRPs). The measure's hypothesized multidimensionality was examined. The measure was tested in relation to a nomological network comprised of individual-level correlates based on Ajzen and Fishbein's (1980) theory of reasoned action and dyad-level correlates regarding the longevity of the relationship between BRPs, the anticipated future longevity of their relationship, and their ability to manage conflict. Survey and archival data were used. Support for the measure's construct validity came from individual-level confirmatory factor analyses. Further support came from analyses of individual-**

**level and dyad-level correlates. Implications for the measure's use in future theory testing on BRP trust and interorganizational collaboration are discussed.** © 1995  
Academic Press, Inc.

---

The work reported herein was supported under the Education Research and Development Center program, Agreement R117Q00011, CFDA 84.117Q, as administered by the Office of Educational Research and Improvement, U.S. Department of Education. The findings and opinions expressed in this report do not reflect the position or policies of the Office of Educational Research and Improvement or the U.S. Department of Education. Additional financial support came from the the R. Brinkley Smithers Institute for Alcoholism and Workplace Problems. The state chapter of the National Education Association made available the data on strikes. The first author thanks Tove H. Hammer, Richard Darlington, Tom Gilovich, and Harry Katz. Gary Blau, Mark Fichman, Cherlyn Granrose, Andrew Inkpen, Dan Levinthal, Ron Taylor, David Wazeter, and Cheyenne Currall provided helpful feedback and discussions. Correspondence and reprint requests should be addressed to Steven C. Currall at Jones Graduate School of Administration, Rice University, MS-531, Houston, Texas 77251-1892. E-mail: SCC@RICEVM1.RICE.EDU.

<sup>1</sup>Current address: Department of Management and Organizations, College of Business Administration, University of Iowa, Iowa City, IA 52242.

In contrast to markets and hierarchies, collaborative interorganizational networks are an increasingly common form of economic organization. In today's environment, firms that seek to operate autonomously may suffer a competitive disadvantage relative to collaborative networks of firms that adapt to changing market conditions more quickly, develop more creative solutions, and bring products or services to market in a shorter period of time (Jarillo, 1988; Lorenz, 1993; Powell, 1990). Theoretical work since the late 1980s has suggested that trust is a critical feature of interorganizational collaboration (Alter & Hage, 1993; Bromiley & Cummings, in press; Fichman & Levinthal, 1991; Granovetter, 1992; Jarillo, 1988; Powell, 1990; Reve, 1990). It has been posited, for example, that trust is advantageous because it strengthens interorganizational ties (Fichman & Levinthal, 1991), speeds contract negotiations (Reve, 1990), and generally reduces transaction costs (Bromiley & Cummings, in press).

Despite the substantial theoretical interest in the linkage between trust and interorganizational collaboration, theoretical predictions advanced so far have yet to receive direct empirical tests. Such tests require a measure of interorganizational trust but, interestingly, researchers have devoted scant effort to the measurement of trust. This was recognized by Reve (1990), who called for an increased emphasis on operationalized measures and empirical testing on research concerning interorganizational collaboration.

One way to operationalize interorganizational trust is to focus on the level of trust between the individuals

who provide the linking mechanism across organizational boundaries, namely, boundary role persons (BRPs) (Adams, 1976). Such an approach is consistent with recent "interaction" models whereby interorganizational collaboration is studied in the context of a specific relationship between BRPs (Heide & Miner, 1992; Kumar, Stern, & Anderson, 1993; Ring & Van de Ven, 1994). Personal relationships between BRPs can serve to shape and modify the evolving structure of interorganizational collaboration (Jarillo, 1988; Ring & Van de Ven, 1994). Such collaborative arrangements require, for example, BRPs to negotiate and execute agreements (Ring & Van de Ven, 1994). Moreover, BRPs perform important boundary functions with respect to communication and monitoring the implementation of collaborative arrangements (Adams, 1976; Aldrich & Herker, 1977; Alter & Hage, 1993). Trust between BRPs is a "relationship specific asset" (Fichman & Levinthal, 1991) that facilitates communication and reduces the necessity for organizations to use costly surveillance and control mechanisms (Alter & Hage, 1993; Bromiley & Cummings, in press).

The purpose of the present study was to develop and test the construct validity of a questionnaire that assesses trust between BRPs. The questionnaire provides a quantitative measure of trust that can be used to explore the as-yet-untested theoretical predictions concerning trust and interorganizational collaboration. By providing a detailed examination of the measure's construct validity, we aim to lay a solid measurement foundation for future theory testing.

#### BRP TRUST AND THE CONSTRUCT VALIDITY PROCESS

We followed Schwab's (1980) recommendation that researchers sequence their work so that a measure's construct validity is considered before undertaking substantive research (see also Ilgen, 1987). Construct validity examines the "correspondence between a construct (conceptual definition of a variable) and the operational procedure to measure or manipulate that construct" (Schwab, 1980, pp. 4-5). Substantive validity, on the other hand, focuses on relationships among constructs, i.e., relationships among independent variables and dependent variables of theoretical or practical interest. By adopting Schwab's recommendation, we seek to avoid potentially erroneous future findings on BRP trust by establishing the properties of our measure before it is used in substantive research.

Despite the advisability of investigating construct validity before undertaking substantive work, most previous trust research has neglected construct validity and concentrated on the substantive outcomes of

trust. For example, substantive work has examined the impact of survey measures of trust on negotiation outcomes (Kimmel, 1974), group decision making (Zand, 1972), and subordinates' perceptions of supervisory behavior (Kavanagh, 1975). Notwithstanding the contributions made by these studies, they provided little or no information on the construct validity of trust measures.

Four aspects of our approach to measuring BRP trust deserve mention. First, we measured a BRP's trust in a particular target BRP. In this regard, we identified both the BRP survey respondent and the counterpart BRP referred to in the survey instrument. The instrument was designed to be generalizable to different types of BRPs.

Second, our measure focused upon a BRP's willingness to engage in trusting behavior (e.g., entering into an informal agreement) with the counterpart BRP. This focus was based upon the idea that BRP behaviors shape and modify the interorganizational relationship (Jarillo, 1988; Ring & Van de Ven, 1994). Therefore, our aim was to develop a survey instrument that measured the most proximal antecedent of trusting behavior. Specifically, we used "behavioral estimation" items (Sheppard, Hartwick, & Warshaw, 1988), which assessed a BRP's estimation of the likelihood with which he or she will actually engage in trusting behavior toward the counterpart BRP. Sheppard et al.'s (1988) metaanalysis findings showed that behavioral estimation items are strongly predictive of actual behavior.

Third, our focus upon willingness to engage in trusting behavior makes our measure a unique contribution beyond previous trust measures (e.g., Butler, 1991; Cook & Wall, 1980; Swan, Trawick, Rink, & Roberts, 1988). These previous measures assessed the social judgment correlates of trusting behavior (e.g., the target person's integrity), which, compared to our measure of willingness to engage in trusting behavior, are more "distal" (cf. Fishbein, 1980) antecedents of BRP trusting behavior.

Fourth, we developed a multidimensional measure. Inclusion of multiple dimensions of trusting behavior was essential because it accounted for the possibility that individual BRPs may manifest trusting behavior differently. Furthermore, our rationale for a multidimensional measure paralleled other multidimensional measures, such as Heneman and Schwab's (1985) pay satisfaction questionnaire. Prior to Heneman and Schwab's (1985) measure, pay satisfaction was treated as a "global, unidimensional construct" (p. 120), but their measure prompted researchers to study pay satisfaction as a multidimensional construct. Similarly, although trusting behavior has thus far been conceptualized as a unidimensional construct (e.g., Lorenz,

1993), our findings provide evidence that researchers should study trusting behavior as a multidimensional construct.

Following the construct validity process (Ghiselli, Campbell, & Zedeck, 1981), the first step in developing the measure was to formulate a general conceptual definition of trusting behavior based on a synthesis of the existing trust literature. This definition was applicable to any work relationship. Next, also on the basis of the literature, BRP-specific dimensions (i.e., manifestations) of trusting behavior were posited. Using two separate samples of BRPs to carry out individual-level analyses, we tested the dimensionality of our measure by investigating: (1) whether the trust items converged on their hypothesized dimensions, (2) whether the items reliably measured their respective dimensions, and (3) whether the dimensions were sufficiently distinct to warrant differentiating among them.

Landy (1986) argued that the construct validity process involves hypothesis testing based on correlates (i.e., variables) in a “nomological network” (Cronbach & Meehl, 1995). The construct validity of our measure was evaluated by testing whether the measure behaved as hypothesized in relation to a nomological network, i.e., does the model of correlates operate the way we think it should? The network was comprised of two categories of correlates: (1) individual-level correlates associated with a BRP’s willingness to engage in trusting behavior toward the counterpart BRP and (2) dyad-level correlates associated with the willingness of BRPs to engage in trusting behavior toward each other. Hypothesized individual-level correlates of a BRP’s willingness to trust the counterpart BRP were based upon an extended version of Fishbein and Ajzen’s (1980) theory of reasoned action. Experimental and field research has supported the theory of reasoned action’s underlying causal sequence: From attitudes and perceived norms come behavioral intentions and from intentions come behaviors. Our trust measure corresponds to the behavioral intention construct. Hypothesized dyad-level correlates of mutual trust between BRPs were based upon theoretical work concerning relationships between BRPs (Fichman & Levinthal, 1991; Heide & Miner, 1992; Ring & Van de Ven, 1994) and research on interorganizational conflict (Blake & Mouton, 1984). Figure 1 summarizes the nomological network.

### Conceptual Model and Hypotheses

Previous definitions of trust involve two principle concepts: (1) *reliance* (Giffin, 1967; Rotter, 1980) and (2) *risk* (Deutsch, 1962; Gambetta, 1988; Kee & Knox, 1970; Lorenz, 1993). Drawing from this research, trust

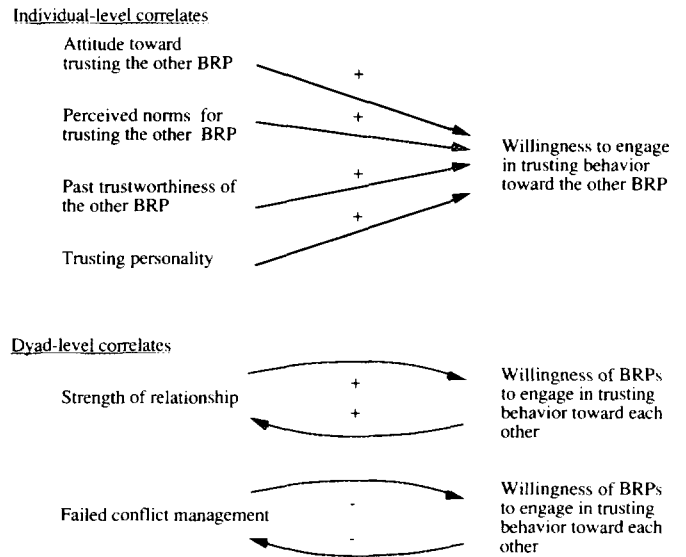


FIG. 1. Nomological network of correlates of BRP trust.

is defined as *an individual’s behavioral reliance on another person under a condition of risk*. Applying this general definition of trust to BRP A and BRP B, risk means that A would experience potentially negative outcomes, i.e., “injury or loss” (Isen, Nygren, & Ashby, 1988), from the untrustworthiness of B. Empirical evidence has shown that this definition of risk is how individuals in organizations use the concept of risk (March & Shapira, 1987). Reliance is volitional behavior by A that allows A’s fate to be determined by B (Zand, 1972). Thus, under a condition of risk, A’s trusting behavior is signified by behavior (i.e., reliance) that puts his or her fate in the hands of B. Using this conceptual definition of trusting behavior as a foundation, our survey measure assessed one’s willingness to engage in trusting behavior.

### Dimensions of Trusting Behavior

Trusting behavior is seen as a family of behaviors all of which are manifestations of “behavioral reliance on another person under a condition of risk.” Although our definition of trusting behavior is generalizable to any work relationship, the dimensions (i.e., manifestations) of trusting behavior we developed are characteristic of BRPs in particular. (Some overlap may exist between the dimensions of BRP trust and the dimensions of trust in other work relationships.) On the basis of existing literature, four dimensions of BRP trust were identified. We expect that, although the dimensions are correlated, they are distinguishable.

1. *Open and honest communication with the counterpart BRP.* BRPs manifest trust by disclosing important yet potentially self-damaging information, being

accurate when communicating, and not filtering or distorting information (Alter & Hage, 1993; Roberts & O'Reilly, 1974).

2. *Entering an informal agreement with the counterpart BRP.* By definition, an informal agreement has no binding written document stating the punitive sanctions to be brought against one who fails to fulfill obligations. Thus, entering an informal agreement manifests trust because the absence of a document creates risk stemming from possible untrustworthiness by the other BRP (Macaulay, 1963; Reve, 1990).

3. *Maintaining surveillance over the counterpart BRP.* Although the other trust dimensions deal with behaviors that manifest high trust, surveillance behavior manifests low trust. That is, if a BRP has little trust in the other BRP, he or she will feel the need to keep careful watch over that person (Strickland, 1958). Alternatively, a low level of surveillance manifests high trust.

4. *Task coordination with the counterpart BRP.* BRPs from counterpart organizations typically have complementary resources, information, or skills (Jarillo, 1988). As a result, BRPs "employ methods of coordination and task integration across organizational boundaries" (Alter & Hage, 1993, p. 46). BRPs manifest trust in each other when they coordinate tasks they cannot carry out independently.

These four dimensions were posited to be common to all BRPs. Within each of the Communication, Informal Agreement, and Surveillance dimensions, survey items were developed that tapped trusting behaviors common to all BRPs. Because trusting behaviors within the Task Coordination dimension vary on the basis of the organizational context, our Task Coordination items were developed to fit the context in which the present study was carried out, namely, public school districts.

### *Individual-Level Correlates*

Fishbein-Ajzen's theory of reasoned action (Ajzen & Fishbein, 1980) is essentially a "decision" model (Fishbein, 1980, p. 114). Four characteristics of the Fishbein-Ajzen model made it the optimal theoretical foundation for the individual-level correlates. First, the model provided an established theory of behavior that can be applied deductively to the study of BRP trust. Because our study examined new research questions (e.g., the dimensionality of trust), it was necessary to base the nomological network upon an established theory. Second, because of the central role of the expectation concept in previous writings by trust researchers such as Deutsch (1962), Gambetta (1988), and Rotter (1980), the Fishbein-Ajzen framework had the advan-

tage of having the expectation concept "built in" as part of its expectancy-value attitude conceptualization. Third, the Fishbein-Ajzen framework allowed for a test of the influence of normative pressures on BRP trust (Granovetter, 1992). One of the preponderant issues in research on BRPs (e.g., Adams, 1976; Wall, 1975) has been the impact of constituents' normative pressures on BRP behavior. Fourth, by using the extended version of the Fishbein-Ajzen model developed by Bentler and Speckart (1979), we included a measure of the consequences of past trusting behavior. This measure was critical because Strickland's (1958) work showed that, when deciding whether to trust another person, one is sensitive to the degree to which that person has responded in a trustworthy manner to one's past trusting behavior.

In applying the Fishbein-Ajzen framework, we measured the "attitude toward trusting" and "perceived norms for trusting" as well as the measure of willingness to engage in trusting behavior itself. Based upon Fishbein-Ajzen's expectancy-value attitude model, we propose that a positive attitude toward trusting exists when BRP A expects BRP B to (1) behave in a trustworthy way (i.e., behave in a way that will result in positive consequences or absence of negative consequences for A), or (2) not behave in an untrustworthy way (i.e., behave in a way that will result in negative consequences or absence of positive consequences for A). We hypothesize:

Hypothesis 1. The more positive A's attitude toward trusting B, the greater A's willingness to engage in trusting behavior toward B.

Perceived norms refer to beliefs about what one "ought to" or "should" do in a given role. Applying the Fishbein-Ajzen framework, perceived norms for trusting are comprised of (1) the belief that a referent (i.e., person or group) thinks that A should or should not trust B and (2) A's motivation to comply with that referent.

Hypothesis 2. The stronger the perceived norms for trusting B, the greater A's willingness to engage in trusting behavior toward B.

Bentler and Speckart's (1979) findings suggested that the basic Fishbein-Ajzen framework can be augmented by including a variable measuring whether past behavior has been associated with positive or negative consequences (see also Ajzen, 1991). With respect to trust, A experiences positive consequences from B's trustworthy behavior and negative consequences from B's untrustworthy behavior. Thus, positive consequences from B's past trustworthiness will strengthen A's trusting behavior toward B; negative consequences from B's past untrustworthy behavior will diminish A's trusting behavior toward B.

Hypothesis 3. The more trustworthy B has been in the past, the greater A's willingness to engage in trusting behavior toward B.

Previous research on the trait of trusting personality (Driscoll, 1978; Kavanaugh, 1975; Rotter, 1967; 1980) suggests the advisability of including this individual difference variable in the Fishbein–Ajzen framework. For Rotter, a trusting personality is based on a “generalized expectancy held by an individual that the word, promise, oral or written statement of another individual or group can be relied on” (1980, p. 1). Using social learning theory, Rotter (1980) explained the development of trust as the formation of baseline expectancies through interactions with significant others (e.g., parents and friends). Trustworthy behavior in the past by significant others forms the basis for a trusting personality. Alternatively, untrustworthy behavior in the past by significant others forms the basis for a suspicious personality. Thus, learned expectations for trustworthy or untrustworthy behavior by other people in general will serve as a baseline for the degree of A's trusting behavior toward B.

Hypothesis 4. The more A has a trusting personality, the greater A's willingness to engage in trusting behavior toward B.

We note that hypothesizing the direct link between trusting personality and willingness to engage in trusting behavior is a slight departure from Ajzen and Fishbein (1980). They posited that the effect of personality is mediated by attitudes and subjective norms. Because our focus was on evaluating the construct validity of our trust measure by testing how it relates to trust-related correlates, we hypothesized a direct link between trusting personality and our measure.

### *Dyad-Level Correlates*

We expected the individual-level variables to apply to dyadic trust in that high mutual trust within a BRP dyad should be found when dyad members (1) have positive attitudes toward trusting each other, (2) perceive normative pressure to trust each other, (3) have been trustworthy in the past, and (4) have trusting personalities. Because analogous relationships between trust and these correlates were specified in Hypotheses 1–4, they are not restated in dyadic terms. Two additional correlates of dyadic trust were tested: (1) the strength of the relationship between BRPs, (2) the history of failed conflict management between BRPs. Although relationship strength and the history of failed conflict management have developmental effects on trust, linkages between these variables and trust are posited to be bidirectional (i.e., noncausal for the purposes of our study).

Two qualities of the strength of BRP relationships were studied, namely, longevity of the prior relationship and anticipated future longevity of the relation-

ship (Fichman & Levinthal, 1991; Heide & Miner, 1992). Because trust is built by demonstrating trustworthiness over time (Levinthal & Fichman, 1988; Strickland, 1958), the strength of the bond between BRPs tends to increase with the longevity of the relationship. Thus, the incentive for maintaining trust generally grows as a function of the longevity of the relationship. Moreover, anticipated future longevity of the relationship increases the strength of the relationship because it involves future interdependence. Interdependence creates a long-term incentive to build and maintain trust. Heide and Miner (1992) suggested that anticipated future interaction engenders trust because both individuals know that the other party will have the opportunity to reward trustworthiness and punish untrustworthiness.

Hypothesis 5. The stronger the relationship, the greater the willingness of BRPs to engage in trusting behavior toward each other.

Although some degree of conflict across organizational boundaries is common (Ring & Van de Ven, 1994), the failure to manage this conflict effectively diminishes the level of trust between BRPs (Blake & Mouton, 1984). If information is misrepresented and strategically rationed during efforts to manage conflict, trust erodes. Failed conflict management “aftermaths” leave residuals of distrust and hostility along with the accompanying delays, deadlocks, and inefficiencies in decision making (Thomas, 1976). We expect a history of failed conflict management to be associated with reduced levels of willingness to engage in trusting behavior between BRPs.

Hypothesis 6. The greater the failure of conflict management, the lesser the willingness of BRPs to engage in trusting behavior toward each other.

Because the BRPs used in our study were management and union representatives, we explored the history of failed conflict management in the form of past strikes. We expect past strikes to be negatively related to the level of trust between management and union BRPs. In a strike, both parties often use coercive tactics to maximize their opponent's costs (e.g., management's attempt to fire strikers and hire strikebreakers). This compounds union–management distrust (Walton & McKersie, 1965). Within organizations where strikes have occurred in the past, we expect that both strike frequency (McConnell, 1990) and strike duration (Gramm, 1986; McConnell, 1990) will negatively relate to trust between management and union BRPs.

## METHOD

### *Setting and Samples*

We investigated BRPs in public school districts. In particular, we studied relationships between school

district superintendents and presidents of local teachers' unions. The superintendent-union president relationship constitutes a critical interorganizational boundary, embedded within the school district, between the district's administration (i.e., management) and the district's local teachers' union (Rosow & Zager, 1989).

Surveys were sent to 500 superintendents and 572 presidents of National Education Association (NEA) and American Federation of Teachers (AFT) local teachers' unions in a state in the northeastern United States. For superintendents, the counterpart BRP (i.e., the person about whom ratings were made) was the president of the local teachers' union in the school district. For union presidents, the counterpart BRP was the school district superintendent. Accompanying each survey was a letter from the senior author and a letter from the highest ranking official in the recipient's professional organization (e.g., executive director of the state association of school administrators). Completed surveys were turned to the senior author in postage-paid envelopes.

Of the 309 surveys returned by superintendents, 305 were suitable for analysis (61% response rate). Ninety-one percent were male and the average age was 50. Two hundred and ninety-three of the 303 surveys returned by presidents were usable (51% response rate). Fifty-nine percent were male and the average age was 43. Within the two samples of superintendents and presidents, there were 154 cases in which surveys were received from both the superintendent and the president from the same school district. Because of missing data, some analyses of dyadic trust used 152 matched superintendent-president dyads.

Concerning nonrespondents, 92% of nonresponding superintendents were male, which did not differ from the superintendents (91% male) who responded to the survey ( $\chi^2 = .33$  with 1 *df*, *ns*). Data on the average age of nonresponding superintendents were unavailable, as were data on the proportion of males and average age of nonresponding presidents. Based upon age and sex, respondents in matched dyads did not differ from respondents not in matched dyads or total respondents, except for one significant difference between the proportions of male presidents in matched dyads versus male presidents not in matched dyads (65% versus 53% males, respectively) ( $\chi^2 = 8.45$  with 1 *df*,  $p < .05$ ).

### Survey Development and Measures

*Willingness to trust the counterpart BRP.* Throughout the development of the trust items, care was taken so that by substituting the counterpart BRP referred to in the Communication, Informal Agreement, and Surveillance items, other researchers can use them to measure BRP trust in any organizational setting. Nec-

essarily, Task Coordination items were specific to the tasks involved in the superintendent-president work relationship.

Preliminary research involved interviews and surveys carried out with a total of 62 superintendents and presidents. These interviewees were not part of the samples of superintendents and presidents who received the final surveys. A 2-step procedure was followed in developing trust items. In step one, superintendent and president interviewees answered open-ended survey questions by giving examples of how they might trust their counterpart. These questions asked how interviewees would engage in behavioral "reliance" on their counterpart in terms of specific behaviors. In group interviews following completion of the preliminary surveys, the four hypothesized dimensions of trust were used as prompts to develop items tapping specific trusting behaviors within each dimension (e.g., interviewees were asked how they might trust their counterpart in the domain of Communication). Interviewee responses provided 26 items that described specific trusting behaviors. In step two, "process analysis" (Ghiselli et al., 1981, p. 287) was used to check the content validity of the initial 26 trust items by asking two new groups of superintendent and president interviewees to indicate how much trust in the other BRP would be shown by the trusting behavior described in an item. As a result of these responses, several items were refined (e.g., reworded). Some initial items were found to be unclear expressions of trusting behavior and these items were eliminated. Process analysis resulted in the final 20 trust items administered to the main samples of superintendents and presidents. Five items measured each of the four hypothesized trust dimensions. Items measuring three dimensions were the same for both samples. Items measuring the Task Coordination dimension differed for superintendents and presidents.

Final items used in the surveys asked respondents to indicate the likelihood (ranging from 1 = *extremely unlikely*, 7 = *extremely likely*) that they would engage in particular trusting behaviors with the other BRP. Thus, the items measured the immediate determinant of trusting behavior (Fishbein, 1980, p. 67). Although analogous to measures of behavioral intention (Ajzen & Fishbein, 1980), the wording and response scale was in conformance with what Sheppard *et al.* (1988) referred to as "behavioral estimation" items. Sheppard *et al.*'s (1988) metaanalysis findings revealed that behavioral estimation items showed a somewhat stronger relation with actual behavior (frequency-weighted average correlation: .57) than measures of behavioral intention (frequency-weighted average correlation: .49). The Appendix contains the items and the full response scale.

Bearing in mind that the conceptual definition of trust argued that risk is a condition for trust, we computed descriptive statistics on the degree of risk that superintendents and presidents reported in their work relationships with each other. Five survey items asked respondents about the undesirability of negative consequences stemming from their counterpart's untrustworthy behavior. The response scale ranged from  $-3 = \textit{extremely undesirable}$ ,  $3 = \textit{extremely desirable}$ . Means for superintendents and presidents were  $-2.13$  and  $-2.18$ , respectively. These means revealed that superintendents and presidents reported a substantial degree of risk in their relationships. Presidents reported only slightly more risk than superintendents ( $t = 1.06$ , *ns*).

*Attitude toward trusting the counterpart BRP.* With respect to trust, when A engages in trusting behavior, B exhibits trustworthiness resulting in a desirable consequence for A, or B exhibits untrustworthiness resulting in an undesirable consequence for A. Therefore, in considering whether to engage in trusting behavior, A's attitude is based on (1) expectations concerning the likelihood of either trustworthiness or untrustworthiness by B and (2) valences of anticipated consequences stemming from B's trustworthiness or untrustworthiness.

Interviews of superintendents and presidents were used to identify standard (i.e., commonly held) beliefs concerning expectations and valences (Ajzen & Fishbein, 1980, p. 64). Although standard beliefs do not necessarily represent the beliefs of all respondents, they enable comparisons among respondents by providing a general picture of beliefs that determine attitudes of most members of a given sample (Ajzen & Fishbein, 1980, p. 72). Moreover, Hackman and Anderson's (1968) evidence showed that, to maximize attitude-criterion correlations, the use of standard beliefs was superior to using the idiosyncratic beliefs of individual respondents.

From interviews, a list was compiled of instances in which typical superintendents and presidents exhibit trustworthiness or untrustworthiness in the context of the Task Coordination dimension of trusting behavior. (These instances were identified during the interviews used to develop items measuring willingness to engage in trusting behavior.) The five most frequent instances mentioned by superintendent and president interviewees were the basis for items measuring their respective attitudes toward trusting their counterpart. There were two reasons for basing the attitude toward trusting scale on the Task Coordination dimension. First, we chose the Task Coordination dimension because it had maximum hedonic relevance to superintendents and presidents in the work they do with each

other. Second, we wished to limit the overall number of items in the survey. To include attitude items that pertained to all four dimensions of trust would have lengthened the survey by 60 items. This likely would have reduced the response rate substantially, thereby precluding the use of confirmatory factor analysis to examine construct validity. Moreover, the overall attitude toward trusting scale (discussed below), based on the Task Coordination dimension of trust, was strongly correlated with a four-item semantic differential scale measuring a respondent's general "feelings about trusting" the counterpart BRP (i.e., a "direct" attitude measure [Ajzen & Fishbein, 1980]). Correlations were .66 and .68 for superintendents and presidents, respectively.

For both superintendents and presidents, there was a total of ten item pairs. That is, two pairs of expectation-valence items were developed for each of the five instances where the respondent's counterpart can exhibit either trustworthiness or untrustworthiness in the context of Task Coordination. One pair of items pertained to trustworthiness by the counterpart and the desirable consequence. The other pair pertained to untrustworthiness by the counterpart and the undesirable consequence. For example, because a president has access to the teachers' grapevine, a superintendent often manifests trust by seeking to coordinate efforts with the president to stop false rumors from circulating among teachers about teacher transfers and promotions. Such rumors can generate substantial teacher-administrator conflict. Superintendent interviews revealed that the president exhibits trustworthiness by helping to stop rumors or exhibits untrustworthiness by allowing rumors to continue circulating. Thus, the expectation component of the superintendent's attitude was measured by asking "How likely is it that the president would try to stop false rumors about personnel decisions that are circulating among the teachers?" A 5-point response scale (Ilgen, Nebeker, & Pritchard, 1981) was used ( $0 = \textit{Not at all likely}$ ,  $4 = \textit{Definitely likely}$ ). The valence item corresponding to the desirable consequence of the president's trustworthiness was "False rumors about personnel decisions that are circulating among the teachers are quickly stopped." The consequence's valence was rated on a 7-point scale ( $-3 = \textit{extremely undesirable}$ ,  $3 = \textit{extremely desirable}$ ). A separate pair of expectation-valence items measured the likelihood of untrustworthiness by the president (the president allows false rumors to circulate) and the valence of the undesirable consequence (false rumors continue to circulate among teachers). The same response scales were used for these expectation (recoded  $-4$  to  $0$ ) and valence items. Items measuring a president's attitude toward trusting the superintendent were developed using the same procedure described above.



Ajzen and Fishbein's (1980) attitude model calls for use of a multiplicative combination of expectations and valences. However, Evans (1991) questioned the use of a multiplicative composite. Following Evans (1991, p. 9), hierarchical regression was used to test whether a multiplicative ( $\sum e \times v$ ) or additive ( $\sum e + v$ ) composite was appropriate. Results failed to show support for the multiplicative composite. For this reason, we used the additive composite of attitude toward trusting. The sum of the 10 expectation-valence sums became the single scale representing a respondent's overall attitude toward trusting the counterpart. The same procedure was used to test the multiplicative model of the perceived norms variable; support for the multiplicative model was not found. Accordingly, the additive composite of perceived norms was used.

*Perceived norms for trusting the counterpart BRP.* Based upon Ajzen and Fishbein (1980), perceived norms for trusting included (1) a respondent's belief that salient normative referents think the respondent should or should not trust the other BRP and (2) the respondent's motivation to comply with those referents. Interviewees provided lists of salient referents. The six referents most frequently mentioned by superintendents (e.g., the school district's board of education) and by presidents (e.g., members of the local teachers' union) were used. A 5-point response scale measured respondents' perceptions about whether a referent thinks the respondent should trust the counterpart BRP (1 = *should not*, 5 = *should*). A five-point response scale measured respondents' motivations to comply with the referent (1 = *I do not want to do what the referent thinks I should do*, 5 = *I want to do what the referent thinks I should do*). The overall index of perceived norms for trusting the counterpart BRP was the sum of the six sums of corresponding pairs of normative belief and motivation to comply items.

*Past trustworthiness of the counterpart BRP.* Four items measured the degree to which the respondent's past trusting behaviors have been met with trustworthy responses by the counterpart BRP. Each item referred to a dimension of trust. For example, the superintendent survey stated: "In terms of communicating with (i.e., receiving or giving information) the president, when I have trusted him/her in the past . . ." A 5-point scale specified the frequency (Bentler & Speckart, 1979, p. 457) of past trustworthy behavior (1 = *he/she has never been trustworthy*, 5 = *he/she has always been trustworthy*). The mean of these items measured the degree to which the respondent's past trusting behavior has been met with trustworthy acts by the counterpart BRP. Coefficient alphas of these scales were .93 for superintendents and .89 for presidents.

*Trusting personality.* Rotter's (1967) interpersonal trust scale measures the extent to which an individual has a trusting personality. The scale is made up of 25 trust items (of which 12 are negatively worded) and 15 "filler" items. The psychometric properties of this scale are well documented. The present study used a short form of Rotter's scale developed by Chun and Campbell (1974). The short form included the 12 items (of which eight are negatively worded) that best retained the 25-item scale's factorial structure (Chun & Campbell, 1974). Because superintendents and presidents are sensitive to proper grammar, three items were reworded slightly. Chun and Campbell's 5-point response scale (1 = *Strongly disagree*, 5 = *Strongly agree*) was used. The mean of the respondent's answers measured trusting personality. Coefficient alpha was .80 for superintendents and .74 for presidents. Additionally, the use of this measure also provides a way to examine the convergent validity of our trust measure.

*Strength of the relationship between BRPs.* Superintendents and presidents responded to items regarding the longevity of their relationship to date. Superintendents were asked, "How long have you worked with the local union president since he/she has been president?" Responses were made in terms of years and months. A different question was necessary for presidents. They were asked "How long have you held your current position as the local union president?" Responses were made in terms of years and months. This was the appropriate question because a typical president holds a regular teaching position in the school district prior to being elected. Thus, before being elected the president has "worked with" the superintendent in that the superintendent was the president's boss. Error would therefore have been introduced by asking a president how long he or she had "worked with" (i.e., "worked under") the superintendent.

As a conservative estimate of the longevity of the relationship, we used the lesser of the two responses made by the superintendent and the president. For example, if the superintendent reported having worked with the president for 3 years and the president reported having occupied the president position for 3 years and 4 months, then the longevity of the relationship was coded as 3 years. The distribution of longevity of a relationship is typically skewed (Heide & Miner, 1992) as was the case in the present data. The Pearson goodness-of-fit  $\chi^2$  test for distributional normality (Hays, 1981, pp. 542-544) revealed a  $\chi^2$  of 88.0 (5 *df*,  $p < .05$ ) indicating a nonnormal distribution. Therefore, for use in parametric statistics we applied the logarithm of the longevity of the relationship.

In terms of anticipated future longevity of the relationship, superintendents were asked, "Making your



best estimate, how long do you expect to continue to work together as the superintendent and local union president?" Presidents were asked, "Making your best estimate, how long do you expect to continue to work together as the president and superintendent?" Responses were made in terms of years and months. Of the two responses, the lesser was used as a conservative measure of anticipated longevity of the relationship. The  $\chi^2$  test for distributional normality revealed a  $\chi^2$  of 111.97 (5 *df*,  $p < .05$ ) indicating a nonnormal distribution. We applied the logarithm of anticipated longevity of the relationship.

*History of failed conflict management.* As an index of failed conflict management, archival data were obtained on teachers' strikes in each matched dyad's school district. These data were compiled by the state chapter of the National Education Association. Collective bargaining in a school district takes place once every two to four years and strikes typically occur as a result of a collective bargaining impasse. The trust survey was administered in January–March of 1990. Therefore, using strike data from the four years prior to administration of the trust survey (1985–1986 through the 1989–1990 academic years) allowed for the possible occurrence of at least one strike in the dyad's school district.

Three measures of strikes were used. The first was a dichotomous index of strike occurrence (Gramm, 1986) whereby 0 = *no strikes* and 1 = *one or more strikes*. The measure of strike occurrence allowed us to observe trust levels in school districts that have avoided strikes altogether versus trust levels in districts that have suffered at least one strike. The second strike measure was the number of strikes (McConnell, 1990) over the previous four years. In a school district where strikes recur, superintendent–president trust is likely to be

low. The third measure concerned strike duration (Gramm, 1986). Some strikes are of relatively short duration (e.g., 1 or 2 days). Others are more protracted and last weeks. Protracted strikes should be especially damaging to superintendent–president trust. As the measure of strike duration, we aggregated the total number of days the district's teachers struck over the four-year period.

## ANALYSES

The two objectives of the analyses were: (1) to investigate the trust measure's factor structure with respect to convergent validity, discriminant validity, and generalizability (i.e., between-sample consistency), and (2) to examine whether the trust measure was associated with the nomological network's individual-level and dyad-level correlates in a manner consistent with Hypotheses 1–6. The analyses are summarized in Table 1.

*Factor Structure.* Using LISREL 8 (Joreskog & Sorbom, 1993), confirmatory factor analysis (CFA) was used to determine if the trust items adequately represented the hypothesized dimensions (Long, 1983). CFA is well suited to investigate construct validity because it allows direct investigation of the degree to which specific items jointly load on their hypothesized constructs (i.e., convergent validity) and the degree to which purportedly different constructs can be distinguished from one another (i.e., discriminant validity) (Long, 1983). Sample size is an important consideration in determining the appropriateness of estimating CFA models (Idaszak, Bottom, & Drasgow, 1988). Because the sample size to estimated parameter ratio exceeded the 5:1 ratio suggested by Bentler (1985) (i.e., the smallest ratio was 6.2:1), the sample sizes were considered adequate (Brooke, Russell, & Price, 1988).

**TABLE 1**  
Summary of Analyses

Analysis	Unit of analysis	Research objective
Fit of the four dimensional measurement model	Individual	Convergent validity
Significance of factor loadings	Individual	Convergent validity
Significance of interfactor correlations	Individual	Convergent validity
Alternative measurement models	Individual	Discriminant validity
Differential correlations among trust dimensions and individual-level correlates	Individual	Discriminant validity
Differential correlations among trust dimensions and dyad-level correlates	Dyad	Discriminant validity
Between-sample consistency in factor loadings	Individual	Generalizability
Between-sample consistency in interfactor correlations	Individual	Generalizability
Equations testing individual-level correlates as predictors of trust dimensions	Individual	Adequacy of the nomological network
Maximum likelihood correlations between dyad-level correlates and trust dimensions	Dyad	Adequacy of the nomological network

In CFA, it is essential first to examine the overall fit of the model. If a model does not fit the data acceptably, the hypothesis that the model accurately represents the data is rejected. However, serious concerns have been raised about some of the most widely used measures of model fit, most notably the chi-square ( $\chi^2$ ) statistic (Bentler & Bonnett, 1980). Thus, on the basis of recent reviews of fit statistics (Bollen & Long, 1993; Medsker, Williams, & Holahan, 1994; Mulaik, James, Alstine, Bennett, Lind, & Stilwell, 1989), we report only the following fit statistics: goodness of fit index (Joreskog & Sorbom, 1989), normed fit index (Bentler & Bonnett, 1980), Tucker-Lewis index (Marsh, Balla, & McDonald, 1988), parsimonious fit index (James, Mulaik, & Brett, 1982; Mulaik *et al.*, 1989), and comparative fit index (Bentler, 1990). The most common rule of thumb threshold in evaluating the acceptability of these statistics is .90 (Medsker *et al.*, 1994). However, because the underlying population distributions for these statistics are unknown, and because there is no clear consensus in what constitutes an appropriate fit, assessment of overall model fit is still a subjective process whose final interpretation must rest with the reader (Tanaka, 1993). Despite the dependence of  $\chi^2$  on sample size, consistent with conventional practice in organizational research (Medsker *et al.*, 1994), nested models are compared on the basis of the  $\chi^2$  statistic.

*Analyses of correlates.* Individual-level and dyad-level correlates were used in two ways. First, both types of correlates were used to investigate the discriminant validity of the four dimensions of trust. Consistent with Brooke *et al.* (1988), Judge (1993), and Mathieu and Farr (1991), discriminant validity can be investigated by examining whether measures of purportedly different dimensions display differential patterns of correlations with other correlates. We did this by comparing the fit of a model where the correlation of a correlate with the four dimensions of trust was freely estimated to the fit of a nested model where the correlate was constrained to have an equal relationship with all four dimensions. Thus, we used LISREL to examine whether correlates displayed differential relationships with the trust dimensions. If the correlates relate similarly with all four trust dimensions (i.e., the fit of the constrained model is not significantly different from the fit of the unconstrained model), it calls into question the utility of distinguishing among the dimensions. Second, individual-level and dyad-level correlates were used to examine whether the trust measure behaved as hypothesized regarding the nomological network. Because Hypotheses 1–4 were based upon the causal logic of the Fishbein–Ajzen model, LISREL tested the individual-level correlates as predictors of the trust measure. Relationships between the dyad-level correlates and trust, posited in Hypotheses 5 and

6, were assumed to be bidirectional; we used LISREL to compute maximum likelihood estimates of correlations between the trust measure and these correlates.

## RESULTS

Our analyses required the use of sample covariances as input for the LISREL programs (Drasgow & Kanfer, 1985). The covariance matrices are not reported but are available upon request. After data were collected, it was felt that Item 9 was ambiguously worded. It was intended to measure Surveillance, yet the item's wording was more similar to the Task Coordination dimension. Accordingly, this item was omitted from the CFA.

### *Factor Structure: Superintendent Sample*

The measurement model proposed a four factor structure corresponding to the hypothesized four dimensions of BRP trust. The fit statistics of this model for superintendents were: goodness of fit index = .90; normed fit index = .84; parsimonious fit index = .70; Tucker-Lewis index = .91; comparative fit index = .91. These statistics indicate that the model provided an adequate (albeit not exemplary) fit to the data. Table 2 provides the standardized parameter estimates (factor loadings) of the items on their respective dimensions. The factor loadings were relatively strong (average loading = .59) and highly significant ( $p < .001$ ). Thus, the specific items converged on their hypothesized dimensions. Although several factor loadings were below the often cited rule of thumb of .50, we did not eliminate these items from the analysis because they were statistically significant and because we wished to keep our approach confirmatory. Inspection of the modification indices in the lambda- $X$  matrix revealed no significant modification indices, suggesting that there were no significant cross-factor loadings. Furthermore, there were no significant modification indices in the theta-delta matrix, suggesting that each factor was adequately captured by the specific items within each subscale (i.e., each factor was unidimensional). Table 2 also provides coefficient alphas of the trust subscales (some alphas were in the low range, around .70). A 19-item Total Trust measure was formed by summing unit-weighted means of the four trust subscales (Surveillance subscale reversed). Coefficient alpha was .84.

Table 3 provides LISREL estimates of the correlations among the trust dimensions. The scale for each dimension was the mean of the dimension's items. The estimates reflect the correlations between the dimensions corrected for measurement error. All correlations were significant and in the expected direction. Communication, Informal Agreement, and Task Coordination were positively correlated. Surveillance implies low

**TABLE 2**  
Measurement Loadings

Item	Communication subscale		Informal Agreement subscale		Surveillance subscale		Task Coordination subscale	
	Supt.	Pres.	Supt.	Pres.	Supt.	Pres.	Supt.	Pres.
1	.52	.19						
7	.51	.49						
8	.51	.49						
12	.62	.85						
18	.41	.76						
3			.64	.62				
5			.58	.54				
10			.60	.43				
17			.42	.56				
20			.65	.59				
2					.80	.69		
6					.83	.70		
14					.66	.81		
15					.56	.68		
4							.59	.27
11							.62	.75
13							.61	.67
16							.56	.65
19							.48	.69
Coefficient alpha	.72	.71	.73	.68	.79	.82	.70	.74

Note. All loadings were significant at the  $p < .001$  level. Item numbers correspond to their order in the surveys. Estimates are standardized.

trust and was therefore negatively correlated with the other three dimensions.

The above fit statistics and parameter estimates supplied initial evidence in favor of the convergent validity of the items measuring the four dimensions of trust, but they do not address discriminant validity. Are the scales capable of distinguishing the trust dimensions? Discriminant validity was first investigated by comparing the fit of the hypothesized model to a model with a single trust construct. If the dimensions do not have adequate discriminant validity, the fit of a single factor model will not be significantly worse than the hypothesized four factor model. In such a case, a single

factor model would do an acceptable job of describing the data. This would refute the hypothesized multidimensionality of trust. The fit of the single factor model was significantly worse than the hypothesized model (increase in  $\chi^2 = 440.50$  with 6 *df*,  $p < .001$ ). Even forming the two most highly related dimensions of trust (Informal Agreement and Task Coordination) into one resulted in a significant decrease in fit (increase in  $\chi^2 = 58.52$  with 3 *df*,  $p < .001$ ). These findings support the discriminant validity of the dimensions.

Following Brooke *et al.* (1988), Judge (1993), and Mathieu and Farr (1991) the individual-level correlates were also used to investigate discriminant validity. If the individual-level correlates relate similarly with all four trust dimensions, it calls into question the utility of distinguishing among the dimensions. Two models were estimated for each of the correlates. One model allowed the correlations between each correlate (e.g., perceived norms) and each of the four trust dimensions to be freely estimated. The other model constrained the correlations between each correlate and dimensions to be equal. If the fit of these two models is not significantly different, then that correlate (e.g., perceived norms) has a similar association with all dimensions. Table 4 contains descriptive statistics and correlations for measures of individual-level correlates for both samples. For the superintendents, constraining each correlate to have the same relationship with each dimension resulted in a sevenfold increase in  $\chi^2$ ,

**TABLE 3**  
LISREL Estimates of Correlations between Dimensions of Trust

Dimension	1	2	3	4
1. Communication	—	.41**	-.74**	.67**
2. Informal Agreement	.44**	—	-.30**	.68**
3. Surveillance	-.56**	-.54**	—	-.14*
4. Task Coordination	.51**	.66**	-.64**	—

Note. Estimates were obtained from the phi matrix, which represents correlations among factors corrected for measurement error. Superintendent correlations are above the diagonal; president correlations are below the diagonal. Decimal points are omitted from correlations.

\*  $p < .05$ .

\*\*  $p < .01$ .

**TABLE 4**  
**Descriptive Statistics and Correlations for Individual-Level Correlates**

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. Total Trust measure	17.26 14.66	3.51 3.67	---	77**	76**	-70**	63**	-12*	-06	63**	23**	65**	19**
2. Communication subscale	3.79 3.34	1.20 1.13	69**	---	45**	-48**	26**	-03	-02	44**	25**	47**	21**
3. Informal Agreement subscale	3.97 3.59	1.18 1.13	74**	36**	---	-30**	48**	-11	-09	40**	08	44**	09
4. Surveillance subscale	3.15 4.87	1.39 1.37	-78**	-41**	-40**	---	-12*	07	02	-53**	-18**	-54**	-25**
5. Task Coordination subscale	4.66 4.60	1.15 1.24	78**	36**	51**	-48**	---	-14*	05	41**	15*	39**	-06
6. Age	50.20 42.97	6.56 6.39	14*	17**	06	-15**	05	---	-02	-08	02	-13*	00
7. Sex (women = 0; men = 1)	.91 .59	.32 .58	-06	00	00	10	-07	13*	---	00	01	-02	01
8. Attitude toward trusting the other BRP	7.25 6.24	8.81 8.89	68**	40**	42**	-50**	71**	12*	-02	---	26**	71**	08
9. Perceived norms for trusting the other BRP	42.01 38.49	5.58 5.13	42**	29**	19**	-35**	41**	05	-07	38**	---	28**	01
10. Past trustworthiness of the other BRP	4.11 3.54	.80 .84	72**	40**	48**	-58**	68**	06	-06	71**	50**	---	-01
11. Trusting personality	2.99 2.61	.58 .50	19**	14*	15**	-19**	08	00	-07	14*	08	16**	---

*Note.* Superintendents: *N* = 295–305. Presidents: *N* = 273–293. Means and standard deviations for superintendents are listed first; presidents are listed second. High surveillance indicates low trust. Decimal points are omitted from correlations. Superintendent correlations are above the diagonal; president correlations are below the diagonal. *t* tests revealed significant differences (*p* < .001 level, two-tailed) between samples for all means except for Attitude toward trusting and Task Coordination.

\* *p* < .05.

\*\* *p* < .01.

which was significant (increase in  $\chi^2 = 43.28$  with 12 *df*, *p* < .001). When the correlations of the correlates with each dimension of trust were constrained, one dimension at a time, the decrease in fit was significant in all cases (e.g., equating trusting personality resulted in an increase in  $\chi^2 = 21.39$ , *p* < .001), except for attitude toward trusting the president (increase in  $\chi^2 = 3.66$ , *ns*). Overall, this suggests that the dimensions do exhibit different relationships with the individual-level correlates, supporting the discriminant validity of the trust dimensions.

A further test of discriminant validity was conducted using the dyad-level data. This was accomplished by examining whether the pattern of dyad-level correlates differed significantly across the four dimensions of trust. Before examining this issue, however, we tested whether dyads were an appropriate unit of analysis. A one-way analysis of variance (with matched dyad members within each cell) showed that the within-dyad variance of Total Trust scores was significantly less than the between-dyad variance  $F(151, 152) = 2.19$ , *p* < .0001. With respect to the degree of similarity of within-dyad Total Trust scores, the intraclass correlation was .37 (*p* < .05) suggesting that, on average, within-dyad scores were significantly more similar than were scores of respondents in different dyads (cf.

Hays, 1981, p. 382). These findings support use of the dyad as a unit of analysis.

Returning to the question of whether the pattern of dyad-level correlates differed significantly across the four dimensions of trust, for eight of the nine dyad-level correlates, equating the correlations between the four dimensions and each correlate resulted in a significant decrease in fit (*p* < .01). The only exception was the length of time the dyad members anticipated continuing to work together, where equating the correlations resulted in an increase in  $\chi^2$  of 1.98 with three degrees of freedom (*ns*). This indicates that the dimensions exhibited different associations with the dyad-level correlates. This is further evidence to suggest that the trust dimensions are distinct.

*Factor Structure: President Sample*

Regarding the hypothesized four dimensional measurement model, the fit statistics for presidents were: goodness of fit index = .88; normed fit index = .81; parsimonious fit index = .68; Tucker–Lewis index = .85; comparative fit index = .87. Although the measurement model for presidents failed to surpass the conventional .90 fit indices cutoff, we decided to retain the model because it provided a reasonable fit to the data for both

samples. The factor loadings for presidents were strong (average loading = .60) and highly significant ( $p < .001$ ). The specific items converged on their hypothesized dimensions. The modification indices in the lambda- $X$  matrix revealed no significant modification indices. Furthermore, no significant modification indices were found in the theta-delta matrix. Thus, for both samples each factor was adequately captured by the specific items within each subscale. A 19-item Total Trust measure was formed by summing unit-weighted means of the four trust subscales (Surveillance subscale reversed). Coefficient alpha was .86. Table 3 provides LISREL estimates of the correlations between the trust dimensions for the president sample. Again, all correlations were significant and in the expected direction.

Discriminant validity was investigated by comparing the fit of the hypothesized model to a model with a single trust construct. For presidents the fit of the single factor model was significantly worse than the hypothesized model (increase in  $\chi^2 = 231.87$  with 6  $df$ ,  $p < .001$ ). Forming the two most highly related dimensions of trust (Informal Agreement and Task Coordination) into one resulted in a significant decrease in fit for presidents (increase in  $\chi^2 = 55.74$  with 3  $df$ ,  $p < .001$ ). These findings support the discriminant validity of the dimensions.

The individual-level correlates were again used to investigate discriminant validity. As with the superintendent sample, two models were estimated for each of the correlates. One model allowed the correlations between each correlate and each of the four trust dimensions to be freely estimated. The other model constrained the correlations between each correlate and dimensions to be equal. For presidents, constraining each correlate to have the same relationship with each dimension resulted in a tenfold increase in  $\chi^2$ , which was significant (increase in  $\chi^2 = 93.73$ , with 12  $df$ ,  $p < .001$ ). When the correlations of the correlates with each dimension of trust were constrained to be equal, one dimension at a time, reductions in model fit occurred. With respect to attitude toward trusting the superintendent, equating the correlations resulted in a large decrease in fit (increase in  $\chi^2 = 70.65$ ,  $p < .001$ ). On the other hand, equating the correlations for trusting personality resulted in the smallest, yet still significant decrease in fit (increase in  $\chi^2 = 7.87$ ,  $p < .05$ ). Overall, this suggests that the dimensions exhibited different relationships with the individual-level correlates, further supporting the dimensions' discriminant validity.

### *Multi-Sample Tests*

To test the generalizability (i.e., between-sample consistency) of factor loadings, LISREL allows a multisample analysis where a common parameter between

two or more samples can be constrained to be equal. If imposing that constraint results in a significant decrease in fit (as measured by an increase in  $\chi^2$ ), the loadings are significantly different between the two samples. Some of the loadings were significantly different. Four of the five loadings on the Communication factor (items 1, 8, 12, and 18; see Table 2) were significantly different. This difference may be attributable to presidents perceiving greater potential negative consequences associated with giving information to the superintendent. None of the loadings on the Informal Agreement factor or the Surveillance factor differed significantly. The loadings on the Task Coordination dimension were not expected to be identical because the items differed in content for the two samples; in fact three of the five loadings on this factor (items 4, 11, and 19) were significantly different. Overall, the loadings were relatively alike between the samples. Of the 14 loadings expected to be equivalent, 10 were not significantly different. These results suggest that the factor structure was similar for superintendents and presidents. However, this conclusion is subjective because a "batting average" of .71 (10/14) is not conclusive.

Some correlations between the trust dimensions differed across the samples. Using the multi-sample analysis in LISREL, two of the six correlations differed significantly. First, the Surveillance and Informal Agreement correlation differed significantly between superintendents ( $-.30$ ) and presidents ( $-.54$ ). Second, the Surveillance and Task Coordination correlation also differed significantly between superintendents ( $-.14$ ) and presidents ( $-.64$ ).

### *Individual-Level Correlates Analyses*

Table 5 reports the results of LISREL analyses of the individual-level correlates as predictors of each trust scale. With respect to  $R^2$ , the set of individual-level correlates accounted for a significant amount of the variance for each trust scale. Looking at specific correlates, nearly all of the relationships were in the hypothesized direction. Many relationships were significant at the  $p < .05$  level. The trust scales mainly behaved as hypothesized with respect to the individual-level correlates.

For both samples, attitude toward trusting the other BRP showed positive relationships with the Total Trust measure along with the Communication, Informal Agreement, and Task Coordination dimensions. The attitude toward trusting was strongly related to the Task Coordination dimension, a finding that was expected because of the strong measurement "correspondence" (Ajzen & Fishbein, 1977) between the two measures. Also as expected, the attitude toward trusting was negatively related to the Surveillance dimension. Although the results were largely supportive of

**TABLE 5**  
**LISREL Results with Individual-Level Correlates as Predictors of Each Trust Scale**

Correlates	Sample	Total Trust scale		Communication subscale		Informal Agreement subscale		Surveillance subscale		Task Coordination subscale	
		Gamma	<i>t</i>	Gamma	<i>t</i>	Gamma	<i>t</i>	Gamma	<i>t</i>	Gamma	<i>t</i>
Attitude toward trusting the other BRP	Supt.	.29	4.30**	.16	1.79*	.16	1.75*	-.24	-3.04**	.33	3.59**
	Pres.	.22	3.14**	.08	.79	.09	.88	-.09	-1.01	.44	5.80**
Perceived norms for trusting the other BRP	Supt.	.03	.66	.13	2.13**	-.08	-1.20	.00	.05	.04	.65
	Pres.	.05	.95	.14	1.91*	-.09	-1.28	-.06	-1.01	.04	.66
Past trustworthiness of the other BRP	Supt.	.52	7.30**	.44	4.81**	.45	4.66**	-.44	-5.31**	.24	2.42**
	Pres.	.61	7.61**	.36	3.08**	.59	5.02**	-.53	-5.26**	.49	5.60**
Respondent's trusting personality	Supt.	.17	3.23**	.24	3.55**	.07	.95	-.28	-4.67**	-.12	-1.75*
	Pres.	.07	1.52†	.11	1.47†	.10	1.40†	-.10	-1.70*	-.07	-1.27
<i>R</i> <sup>2</sup> for the equation	Supt.	.63**		.44**		.34**		.50**		.32**	
	Pres.	.71**		.33**		.42**		.46**		.78**	

Note. Superintendents: *N* = 294. Presidents: *N* = 288. Because the two samples differed significantly in terms of age ( $t = 13.62, p < .001$ , two-tailed) and sex ( $t = 4.71, p < .001$ , two-tailed), these two variables were used as covariates (control variables) in the equations.

†  $p < .10$ , one-tailed.

\*  $p < .05$ , one-tailed.

\*\*  $p < .01$ , one-tailed.

Hypothesis 1, presidents' attitude toward trusting failed to reach significance with Communication, Informal Agreement, and Surveillance. Turning to Hypothesis 2, the results were mainly unresponsive. For superintendents and presidents, perceived norms for trusting showed a significant positive relationship for the Communication dimension only. Hypothesis 3 received strong support. For both samples, significant positive associations were found between past trustworthiness of the other BRP and each of the trust scales, except for Surveillance, where the expected negative relationship was found. Concerning Hypothesis 4, for presidents, only the association between trusting personality and Surveillance reached significance at the  $p < .05$  level although marginal significance ( $p < .10$ ) was reached for Total Trust, Communication, and Informal Agreement. Significant associations were found between the trusting personality of superintendents and the trust scales except for Informal Agreement. For superintendents, an unanticipated significant negative association was found between personality and Task Coordination. Examining this finding further, we found that personality predicted attitude toward trusting. (That trusting personality predicted attitude toward trusting was not surprising because the personality measure tapped generalized expectations about the trustworthiness of others, whereas the attitude toward trusting tapped specific expectations about the trustworthiness of a target person.) Trusting personality was therefore acting as a suppressor (Pedhazur, 1982, pp. 104–105) in the equation predicting Task Coordination. That is, when the association between trusting personality and attitude was statisti-

cally controlled (as it was in the equation predicting Task Coordination), then the association between trusting personality and Task coordination was negative. In sum, LISREL findings indicated that the trust measure exhibited properties generally consistent with relationships posited in Hypotheses 1–4. These results support the construct validity of the measure of BRP trust.

#### Dyad-Level Correlates Analyses

Table 6 contains the results of LISREL's maximum likelihood estimates of correlations, corrected for measurement error, between within-dyad means of trust scales (e.g., within-dyad mean of the superintendent's and president's Total Trust scores) and correlates. Nearly all correlations were in the expected direction, and most were significant at  $p < .05$ . Correlations between within-dyad means of trust scales and within-dyad means of individual-level correlates (e.g., within-dyad mean of the superintendent's and president's attitude toward trusting scores) were consistent with the pattern of findings in Table 5: The degree to which dyad members had positive attitudes toward trusting and felt that the other party had been trustworthy in the past showed the strongest associations with the trust scales.

With respect to strength of the relationship between BRPs, the longevity of the prior superintendent-president relationship was on average 2.21 years ( $SD = 2.32$ , range = 17.84). The longevity of the relationship showed significant positive correlations with Total Trust, Communication, Surveillance, and Task Coordi-

**TABLE 6**  
**LISREL Estimates of Correlations between Dyad-Level Correlates and Each Trust Scale**

Correlates	Total Trust scale	Communication subscale	Informal Agreement subscale	Surveillance subscale	Task Coordination subscale
Within-dyad means of individual-level correlates					
Attitude toward trusting	.77**	.49**	.51**	-.68**	.70**
Perceived norms for trusting	.36**	.30**	.16*	-.34**	.30**
Past trustworthiness	.79**	.50**	.56**	-.68**	.71**
Trusting personality	.23**	.21**	.24**	-.22**	.06
Strength of relationship					
Logarithm of longevity of prior relationship	.20*	.29**	.03	-.14*	.18*
Logarithm of anticipated longevity of future relationship	.16*	.14*	.20*	.00	.17*
History of failed conflict management					
Strike occurrence in the last four years (0 = no strikes; 1 = one or more strikes)	-.22**	-.23**	-.08	.21**	-.16*
Strike frequency in the last four years	-.23**	-.23**	-.10	.22**	-.17*
Strike duration (i.e., number of days on strike in the last four years)	-.19*	-.17*	-.09	.19*	-.14*

Note.  $N = 154$ - $152$  matched dyads.

\*  $p < .05$ , one-tailed.

\*\*  $p < .01$ , one-tailed.

nation. The relatively strong positive correlation for Communication suggests that, over time, superintendents and presidents may develop a common understanding that facilitates better communication. Additionally, we note that superintendents and presidents in matched dyads had known each other in "any personal or work-related capacity" for an average of 9.7 years. However, no significant relationships were found between the trust scales and the length of time they had known each other in any personal or work-related capacity. Apparently trust was impacted mainly by the interactions they had in the context of their roles as superintendent and president.

On average, respondents anticipated the future longevity of their superintendent-president relationship to be 1.23 years ( $SD = 1.19$ , range = 4.84). Anticipated longevity of the relationship was consistently related to the trust scales as evidenced by positive and significant correlations with all the trust scales except Surveillance, which showed no relationship. Overall, the results were supportive of Hypothesis 5.

Past strikes, as indicators of the history of failed conflict management, showed significant relationships with the trust scales. As expected, strike occurrence, strike frequency, and strike duration all showed significant negative correlations with the trust scales and significant positive correlations with Surveillance. The exception to this pattern was the Informal Agreement dimension. Superintendents and presidents may be wary of entering private agreements in the first place,

and strikes showed nonsignificant linkages with this dimension of trust. Hypothesis 6 was generally supported.

## DISCUSSION

The strengths of the present study included an examination of the multidimensionality of BRP trust, development and testing of a nomological network of correlates of BRP trust, use of both survey and archival data, and statistical analyses at the individual- and dyad-levels of analysis. With respect to the measure's construct validity, individual-level findings supported the hypothesized multidimensional factor structure of the measure. Tests of a nomological network of individual-level and dyad-level correlates showed a pattern of results providing general (although not unqualified) support for the hypothesized associations outlined in Hypotheses 1-6, further corroborating the measure's construct validity.

### *Multidimensionality of the Measure of BRP Trust*

The multidimensionality of the trust measure suggests that BRP trust can be manifested in terms of the presence of certain types of trusting behavior (open and accurate communication, entering informal agreements, and coordination of tasks) and the absence of nontrusting behavior (maintaining surveillance). Convergent validity of the trust measure was indicated by



findings that, for both samples of BRPs, all items significantly loaded on their hypothesized dimensions (although it should be noted that some loadings were below .50). Also, we note that results in Tables 4, 5, and 6 showed a pattern of positive associations between Rotter's (1967) trusting personality scale, a preexisting trust measure, and our trust measure. These results added further support in favor of the convergent validity of our measure. Correlations among the trust dimensions were significant and in the expected direction. In terms of discriminant validity, alternative measurement models showed a poor fit to the data relative to the hypothesized four-factor model. The four dimensions also exhibited differential patterns of relationships with both individual-level and dyad-level correlates. With respect to generalizability, between-sample analyses showed similarities in factor loadings and correlations between trust dimensions. The internal consistency of the Total Trust scale provided support for its creation (coefficient alphas were .84 and .86 for superintendents and presidents, respectively). We note, however, that second-order factor analyses used to test whether there were sufficient relationships among the trust dimensions to extract an overall trust factor yielded fit statistics in the low to mid .80s.

There were some unanticipated findings for three of the trust dimensions. First, some Communication item loadings differed across the two samples. The "power asymmetry" between superintendents and presidents may explain different responses to these items. The superintendent's greater authority and access to resources makes him or her more powerful than the local union president. Awareness of this may make presidents hesitant to share information that, in the hands of the more powerful superintendent, could be used against the teachers' union. Second, concerning the Informal Agreement dimension, analyses showed weak negative relationships between perceived norms and Informal Agreement. Dyad-level analyses showed a nonsignificant correlation between Informal Agreement and the longevity of prior work relationship and nonsignificant correlations between Informal Agreement and the conflict (i.e., strike) measures. Overall, the Informal Agreement dimension appeared to involve hesitance on the part of superintendents and presidents to make deals outside the legal structure of collective bargaining. As representatives of groups whose interests are often in conflict, these BRPs seemed to be aware that making such deals could be interpreted by constituents as "collusion with the enemy." Although this finding was not anticipated, it makes sense in light of the union and management BRPs used in the present study. Further research is needed on the role of informal agreements in other BRP relationships. Third, the two samples of BRPs ap-

peared to view Surveillance somewhat differently. For superintendents, relative to presidents, weaker negative correlations were found between Surveillance and Informal Agreement and between Surveillance and Task Coordination. This suggests that superintendents drew somewhat less sharp distinctions between behaviors that manifest high trust (i.e., Informal Agreement and Task Coordination) and behaviors that manifest low trust (i.e., Surveillance). A possible explanation is that, in their extensive administrative training, superintendents were taught to engage in trusting behaviors to foster a "cooperative organizational climate." Yet, to guard themselves, they apparently still maintain some degree of surveillance.

### *The Nomological Network*

Investigating the construct validity of the measure involved hypothesis testing on a nomological network of correlates. The Fishbein-Ajzen framework proved to be a solid starting point. This framework allowed us to explore, within a single cohesive theoretical model, how BRP trust was related to attitudes, perceived norms, past behavior, and personality. Moreover, findings on these correlates contribute to the existing trust literature. First, the importance of the attitude toward trusting, derived from Fishbein-Ajzen's expectancy-value model of attitudes, was consistent with previous writings suggesting that expectations are an important factor in one's decision to trust (Deutsch, 1962; Gambetta, 1988; Rotter, 1967; 1980). Second, associations between perceived norms and the trust measure were relatively weak for both samples. Analyses of the influence of these specific normative referents (Currall, 1992) suggested that the weak overall association between norms and trust exists because superintendents and presidents experienced conflicting normative pressures from different referents. Although norms of obligation as the basis for trust have been discussed by Bradach and Eccles (1989), Granovetter (1992), and Macaulay (1963), the present findings draw attention to a possibility not emphasized by previous authors, namely, that BRPs are likely to experience conflicting normative pressures concerning trusting their counterpart. Third, the past trustworthiness or untrustworthiness of the other BRP was strongly related to trust. Thus, our field results parallel Strickland's (1958) laboratory findings, which showed that, when deciding whether to trust another person, individuals are particularly sensitive to that person's past behavior. Last, consistent with previous research (Driscoll, 1978), trusting personality had a weaker association with trust compared to more target-specific correlates (e.g., the attitude toward trusting). Overall, however, the personality findings should be interpreted with caution

because we cannot rule out the possibility of selection bias. For example, individuals with more trusting personalities may have been more likely to return the survey. We note also that the strength of associations between trust and all individual-level correlates are probably inflated by common method variance because all the measures came from the same survey.

With respect to dyad-level correlates, the pattern of results was similar to findings on the individual-level correlates. Additionally, results showed that strong relationships between BRPs were associated with high trust levels. Specifically, the finding that the longevity of prior work relationships was associated with increased trust was consistent with the idea that trust is a relationship-specific asset that accrues over time (Fichman & Levinthal, 1991; Levinthal & Fichman, 1988). Positive associations between anticipated longevity of the relationship and trust supported the notion that future interdependence engenders trust (Heide & Miner, 1992). Furthermore, in support of Ring and Van de Ven (1994), we found negative associations between trust and the history of failed conflict management. Results on strike frequency suggested that trust levels tend to be especially low in BRP relationships that have had a history of recurrent failed conflict management (Blake & Mouton, 1984). Finally, the strike variables were based on archival data. The trust measure therefore behaved as hypothesized with correlates from both archival and survey data. Thus, support for hypothesized relationships among the trust measure and its correlates cannot be attributed solely to common method variance.

### *Limitations*

It is important to note that the present study does not *establish* the construct validity of the measure of BRP trust; it simply furnishes the initial groundwork for a construct valid measure. Construct validity is a process of accumulating empirical findings on a measure's properties (Ilgen, 1987; Landy, 1986; Schwab, 1980). We urge future researchers to contribute to the construct validity process by conducting additional studies of the measurement aspects of BRP trust.

One limitation of this study was that the sample size did not permit an elaborate test of the effects of the dyadic influences on trust. Ideally, we would have tested a full causal model of the influences on trust, but our sample size made such a test inadvisable. Therefore, in addition to replicating these results, future research should expand on them by testing a causal model of dyadic influences on trust. Furthermore, the approach we used to establish discriminant validity, although consistent with past research (Brooke *et al.*, 1988; Judge, 1993; Mathieu & Farr, 1991), is not the

only approach that could be used. An even more theoretically based approach would constrain theoretically irrelevant effects equal to zero rather than examining whether the effects were different across the dimensions of trust. As a final limitation, we again note the marginal nature of some of the president sample's fit statistics for the four dimensional measurement model.

### *Implications for Future Research*

A substantial amount of theoretical work has suggested that trust is critical to interorganizational collaboration (Alter & Hage, 1993; Bromiley & Cummings, in press; Fichman & Levinthal, 1991; Jarillo, 1988; Lorenz, 1993; Powell, 1990; Reve, 1990). Reve (1990) has called for increased emphasis on testing theoretical predictions concerning interorganizational collaboration. The present paper facilitates theory testing through the development of a measure of trust between BRPs, the individuals who bridge organizational boundaries.

Researchers wishing to measure BRP trust in organizational contexts other than the one we studied have two options. One option is to use items in the Communication, Informal Agreement, and Surveillance dimensions only. These items are generic to all BRPs, and they can be used to measure BRP trust in a variety of organizational settings. Consider, for example, possible research on trust and collaborative joint ventures between private sector firms. Badaracco (1991) has noted that joint ventures involve trust between the BRPs (i.e., joint venture managers) who oversee the venture. Our items could be used to assess the level of trust between joint venture managers by substituting the partner firm's joint venture manager as the counterpart BRP in each item. For example, a communication item we used for superintendents was "Give the president all known and relevant information about important issues even if there is a possibility that it might jeopardize the school district." This item could be reworded to assess a joint venture manager's trust in the partner firm's joint venture manager: "Give the partner manager all known and relevant information about important issues even if there is a possibility that it might jeopardize my firm." The same substitutions can be made for all Communication, Informal Agreement, and Surveillance items. Additionally, it would be possible for researchers to use the dimensional subscales to examine which dimensions of trust are associated with, say, levels of cooperation, hostility, and formality in relationships between joint venture managers.

A second option for future researchers, based upon arguments by Jarillo (1988) and Alter and Hage (1993)

that Task Coordination is a central feature of all BRP relationships, involves use of all four dimensions of trust including Task Coordination. This option would be attractive to those who wish to study whether the overall level of BRP trust impacts interorganizational collaboration. To develop Task Coordination items for a particular organizational context, researchers should use the procedure we outlined in the Method section. To develop Task Coordination items, preliminary interviews must include open-ended questions asking how BRPs engage in trusting behavior ("reliance") in the context of Task Coordination. Prior to use in a final survey, these initial items should be refined by subjecting them to Ghiselli *et al.*'s (1981) process analysis.

#### APPENDIX: TRUST ITEMS

Instructions for the items read: "Answer the questions in terms of what you would actually do in dealing with the (counterpart BRP) . . ." The response format was: 1 = *extremely unlikely*, 2 = *quite unlikely*, 3 = *slightly unlikely*, 4 = *neither*, 5 = *slightly likely*, 6 = *quite likely*, and 7 = *extremely likely*. Item numbers correspond to their order in the surveys. Asterisks indicate reversed items.

##### *Communication Dimension Items*

1. Think carefully before telling the (counterpart BRP) my opinions.\*
7. Give the (counterpart BRP) all known and relevant information about important issues even if there is a possibility that it might jeopardize the (respondent's organization).
8. Give the (counterpart BRP) all known and relevant information about important issues even if there is a possibility that it might jeopardize my job as the (respondent's job).
12. Minimize the information I give to the (counter part BRP).\*
18. Deliberately withhold some information when communicating with the (counterpart BRP).\*

##### *Informal Agreement Dimension Items*

3. Enter into an agreement with the (counterpart BRP) even if his/her future obligations concerning the agreement are not explicitly stated.
5. Enter into an agreement with the (counterpart BRP) even if I think other people might try to persuade him/her to break it.
10. Enter into an agreement with the (counterpart BRP) even if it is unclear whether he/she would suffer any negative consequences for breaking it.
17. Decline the (counterpart BRP's) offer to enter into an unwritten agreement.\*

20. Suggest that the (counterpart BRP) and I enter into an unwritten agreement.

##### *Surveillance Dimension Items*

2. Watch the (counterpart BRP) attentively in order to make sure he/she doesn't do something detrimental to the (respondent's organization).\*
6. Keep surveillance over the (counterpart BRP) (i.e., "look over his/her shoulder") after asking him/her to do something.\*
9. Feel confident after asking the (counterpart BRP) to do something.
14. Check with other people about the activities of the (counterpart BRP) to make sure he/she is not trying to "get away" with something.\*
15. In situations other than contract negotiations, check records to verify facts stated by the (counterpart BRP).\*

##### *Task Coordination Dimension Items for Superintendents*

4. Ask the president to convince the membership of the local teacher's union to give support to a newly initiated cooperative program between teachers and school administrators.
11. Ask the president to convince several incompetent teachers to take early retirement.
13. Ask the president to stop false rumors about personnel decisions that are circulating among the teachers.
16. Ask the president to convince the teachers to file grievances only in extreme cases.
19. Rely on the president to convince the membership of the teachers' local to have realistic expectations about what contract changes will be made in the next negotiation.

##### *Task Coordination Dimension Items for Presidents*

4. Ask the superintendent to try to persuade the district's administrators to lend their support to a newly initiated cooperative program between teachers and administrators.
11. Rely on the superintendent to make decisions about teacher transfers and assignments with a genuine concern for teacher job preferences.
13. Rely on the superintendent to dismiss teachers only in cases when poor performance has been clearly and impartially demonstrated.
16. Rely on the superintendent to solve a grievance through informal and cooperative discussions.
19. Rely on the superintendent to adhere to the collective bargaining contract.

## REFERENCES

- Adams, J. (1976). The structure and dynamics of behavior in organizational boundary roles. In M. Dunnette (Ed.), *The handbook of industrial and organizational psychology* (pp. 1175-1199). Chicago: Rand McNally.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, **50**, 179-211.
- Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, **84**, 888-918.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Aldrich, H. & Herker, D. (1977). Boundary spanning roles and organizational structure. *Academy Management Review*, **2**, 217-230.
- Alter, C., & Hage, J. (1993). *Organizations working together*. Newbury Park, CA: Sage.
- Badaracco, J. L. (1991). *The knowledge link: How firms compete through strategic alliances*. Boston: Harvard Business School.
- Bentler, P. M. (1985). *Theory and implementation of EQS: A structural equations program*. Los Angeles: BMDP Statistical Software.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, **107**, 238-246.
- Bentler, P. M., & Bonnett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, **88**, 588-606.
- Bentler, P. M., & Speckart, G. (1979). Models of attitude-behavior relations. *Psychological Review*, **86**, 452-464.
- Blake, R., & Mouton, J. (1984). *Solving costly organizational conflicts: Achieving intergroup trust, cooperation, and teamwork*. San Francisco: Jossey-Bass.
- Bollen, K. A. & Long, J. S. (1993). *Testing structural equation models*. Newbury Park, CA: Sage.
- Bradach, J. L., & Eccles, R. G. (1989). Price, authority, and trust: From ideal types to plural forms. *Annual Review of Sociology*, **15**, 97-115.
- Bromiley, P., & Cummings, L. L. (in press). *Organizations with trust: Theory and measurement*. In R. Bies, R. Lewicki, and B. Sheppard (Eds.) *Research in negotiations* (Vol. 5). Greenwich, CT: JAI.
- Brooke, P. P., Russell, D. W., & Price, J. L. (1988). Discriminant validation of measures of job satisfaction, job involvement, and organizational commitment. *Journal of Applied Psychology*, **73**, 139-145.
- Butler, J. K. (1991). Toward understanding and measuring conditions of trust: Evolution of a conditions of trust inventory. *Journal of Management*, **17**, 643-663.
- Chun, K., & Campbell, J. (1974). Dimensionality of the Rotter interpersonal trust scale. *Psychological Reports*, **35**, 1059-1070.
- Cook, J., & Wall, T. (1980). New work attitude measures of trust, organizational commitment, and personal need non-fulfillment. *Journal of Occupational Psychology*, **53**, 39-52.
- Cronbach, L., & Meehl, P. (1955). Construct validity in psychological tests. *Psychological Bulletin*, **52**, 281-302.
- Currall, S. C. (1992). Group representatives in educational institutions: An empirical study of superintendents and teacher union presidents. *Journal of Applied Behavioral Science*, **28**, 296-317.
- Deutsch, M. (1962). Cooperation and trust: Some theoretical notes. In M. Jones (Ed.), *Nebraska symposium on motivation* (pp. 275-320). Lincoln: Univ. of Nebraska.
- Drasgow, F. & Kanfer, R. (1985). Equivalence of psychological measurement in heterogeneous groups. *Journal of Applied Psychology*, **70**, 662-680.
- Driscoll, J. (1978). Trust and participation in organizational decision making as predictors of satisfaction. *Academy of Management Journal*, **21**, 44-56.
- Evans, M. G. (1991). The problem of analyzing multiplicative composites: Interactions revisited. *American Psychologist*, **46**, 6-15.
- Fichman, M., & Levinthal, D. A. (1991). Honeymoons and the liability of adolescence: A new perspective on duration dependence in social and organizational relationships. *Academy of Management Review*, **16**, 442-468.
- Fishbein, M. (1980). A theory of reasoned action: Some applications and implications. In H. Howe (Ed.), *Nebraska symposium on motivation*: Vol. 27 (pp. 65-116). Lincoln: Univ. of Nebraska.
- Gambetta, D. (1988). Can we trust trust? In D. Gambetta (Ed.), *Trust: Making and breaking cooperative relations* (pp. 213-237). Oxford: Blackwell.
- Ghiselli, E. E., Campbell, J. P., & Zedeck, S. (1981). *Measurement theory for the behavioral sciences*. San Francisco: W. H. Freeman.
- Giffin, K. (1967). The contribution of studies of source credibility to a theory of interpersonal trust in the communication process. *Psychological Bulletin*, **68**, 104-120.
- Gramm, C. L. (1986). The determinants of strike incidence and severity: A micro-level study. *Industrial and Labor Relations Review*, **39**, 361-376.
- Granovetter, M. (1992). Problems of explanation in economic sociology. In N. Nohria and R. Eccles (Eds.), *Networks and organizations: Structure, form, and action*, (pp. 25-56). Boston: Harvard Business School.
- Hackman, J. R., & Anderson, L. R. (1968). The strength, relevance, and source of beliefs about an object in Fishbein's attitude theory. *Journal of Social Psychology*, **76**, 55-67.
- Hays, W. L. 1981. *Statistics*, (2nd ed.). New York: Holt, Rinehart, & Winston.
- Heide, J. B., & Miner, A. S. (1992). The shadow of the future: Effects of anticipated interaction and frequency of contact on buyer-seller cooperation. *Academy of Management Journal*, **35**, 265-291.
- Heneman, H. G., & Schwab, D. P. (1985). Pay satisfaction: Its multidimensional nature and measurement. *International Journal of Psychology*, **20**, 129-141.
- Idaszak, J. R., Bottom, W. P., & Drasgow, F. (1988). A test of the measurement equivalence of the revised Job Diagnostic Survey: Past problems and current solutions. *Journal of Applied Psychology*, **73**, 647-656.
- Ilgen, D. R. (1987, August). *Organizational behavior: Charting new courses or adrift from its moorings?* Paper presented at the meeting of the Academy of Management, New Orleans.
- Ilgen, D. R., Nebeker, D. M., & Pritchard, R. D. (1981). Expectancy theory measures: An empirical comparison in an experimental simulation. *Organizational Behavior and Human Performance*, **28**, 189-223.
- Isen, A., Nygren, T., & Ashby, F. (1988). Influence of positive affect on the subjective utility of gains and losses: It is just not worth the risk. *Journal of Personality and Social Psychology*, **55**, 710-717.
- James, L. R., Mulaik, S. A., & Brett, J. M. (1982). *Causal analysis: Assumptions, models, and data*. Beverly Hills: Sage.
- Jarillo, J. C. (1988). On strategic networks. *Strategic Management Journal*, **9**, 31-41.
- Joreskog, K.G. & Sorbom, D. (1989). *LISREL 7: A guide to the program and applications*. Chicago: SPSS Inc.

- Joreskog, K. G., & Sorbom, D. (1993). *LISREL 8: A guide to the program and applications*. Chicago: SPSS Inc.
- Judge, T. A. (1993). Validity of the dimensions of the pay satisfaction questionnaire: Evidence of differential prediction. *Personnel Psychology*, **46**, 331–355.
- Kavanagh, M. J. (1975). Expected supervisory behavior, interpersonal trust, and environmental preferences: Some relationships based on a dyadic model of leadership. *Organizational Behavior and Human Performance*, **13**, 17–30.
- Kee, H., & Knox, R. (1970). Conceptual and methodological considerations in the study of trust. *Journal of Conflict Resolution*, **14**, 357–366.
- Kimmel, M. (1974). *On distinguishing interpersonal trust from cooperative responding in the Prisoner's Dilemma game*. Unpublished doctoral dissertation, Wayne State University.
- Kumar, N., Stern, L. W., & Anderson, J. C. (1993). Conducting interorganizational research using key informants. *Academy of Management Journal*, **36**, 1633–1651.
- Landy, F. J. (1986). Stamp collecting versus science: Validation as hypothesis testing. *American Psychologist*, **41**, 1183–1192.
- Levinthal, D. A., & Fichman, M. (1988). Dynamics of interorganizational attachments: Auditor–client relations. *Administrative Science Quarterly*, **33**, 345–369.
- Long, J. S. (1983). *Covariance structure models: An introduction to LISREL*. Beverly Hills: Sage.
- Lorenz, E. H. (1993). Flexible production systems and the social construction of trust. *Politics and Society*, **21**, 307–324.
- Macauley, S. (1963). Non-contractual relations in business: A preliminary study. *American Sociological Review*, **28**, 55–67.
- March, J. G., and Shapira, Z. (1987). Managerial perspectives on risk and risk taking. *Management Science*, **33**, 1404–1418.
- Marsh, H. W., Balla, J. R., & McDonald, R. P. (1988). Goodness-of-fit indexes in confirmatory factor analysis: The effect of sample size. *Psychological Bulletin*, **103**, 391–410.
- Mathieu, J. E., & Farr, J. L. (1991). Further evidence for the discriminant validity of measures of organizational commitment, job involvement, and job satisfaction. *Journal of Applied Psychology*, **76**, 127–133.
- McConnell, S. (1990). Cyclical fluctuations in strike activity. *Industrial and Labor Relations Review*, **44**, 130–143.
- Medsker, G. J., Williams, L. J., & Holahan, P. J. (1994). A review of current practices for evaluating causal models in organizational behavior and human resources management research. *Journal of Management*, **20**, 439–464.
- Mulaik, S. A., James, L. R., Alstine, J. A., Bennett, N., Lind, S., & Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. *Psychological Bulletin*, **103**, 430–445.
- Pedhazur, E. J. (1982). *Multiple regression in behavioral research: Explanation and prediction*, 2nd edition. New York: Holt, Rinehart, and Winston.
- Powell, W. W. (1990). Neither market nor hierarchy: Network forms of organization. In B. Staw and L. Cummings (Eds.) *Research in organizational behavior*. (Vol. 12, pp. 295–336). Greenwich, CT: JAI.
- Reve, T. (1990). The firm as a nexus of internal and external contracts. In M. Aoki, B. Gustafson, and O. Williamson (Eds.), *The firm as a nexus of treaties* (pp. 133–161). Newbury Park: Sage.
- Ring, P. S., & Van de Ven, A. (1994). Developmental processes of cooperative interorganizational relationships. *Academy of Management Review*, **19**, 90–118.
- Roberts, K., & O'Reilly, C. (1974). Measuring organizational communication. *Journal of Applied Psychology*, **59**, 321–326.
- Rosow, J., & Zager, R. (1989). *Allies in educational reform: How teachers, unions, and administrators can join forces for better schools*. San Francisco: Jossey-Bass.
- Rotter, J. (1967). A new scale for the measurement of interpersonal trust. *Journal of Personality*, **35**, 651–665.
- Rotter, J. (1980). Interpersonal trust, trustworthiness, and gullibility. *American Psychologist*, **35**, 1–7.
- Schwab, D. (1980). Construct validity in organizational behavior. In B. Staw and L. Cummings (Eds.), *Research in organizational behavior* (Vol. 2, pp. 3–43). Greenwich, CT: JAI.
- Sheppard, B. H., Hartwick, J., & Warshaw, P. R. (1988). The theory of reasoned action: A meta-analysis of past research with recommendations for modifications and future research. *Journal of Consumer Research*, **15**, 325–343.
- Strickland, L. H. (1958). Surveillance and trust. *Journal of Personality*, **26**, 200–215.
- Swan, J. E., Trawick, I. F., Rink, D. R., & Roberts, J. J. (1988). Measuring dimensions of purchaser trust of industrial salespeople. *Journal of Personal Selling and Sales Management*, **8**, 1–9.
- Tanaka, J. S. (1993). Multifaceted conceptions of fit in structural equation models. In K. Bollen and J. Long (Eds.) *Testing structural equation models* (pp. 10–39). Newbury Park, CA: Sage.
- Thomas, K. (1976). Conflict and conflict management. In M. Dunnette (Ed.) *The handbook of industrial and organizational psychology* (pp. 889–935). Chicago: Rand McNally.
- Wall, J. (1975). The effects of constituent trust and representative bargaining visibility on intergroup bargaining. *Organizational Behavior and Human Performance*, **14**, 244–256.
- Walton, R., & McKersie, R. (1965). *A behavioral theory of labor negotiations*. New York: McGraw-Hill.
- Zand, D. (1972). Trust and managerial problem solving. *Administrative Science Quarterly*, **17**, 229–239.

Received July 25, 1994