Do I Contribute More When I Trust More? Differential Effects of Cognition- and Affect-Based Trust

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ABSTRACT   This study investigates the relationship between level of trust and cooperative behaviours in a social dilemma. We argue that this relationship should depend on the basis of trust (cognition- versus affect-based) and on beliefs about the equality of resource endowments. Results supported our prediction that increasing affect-based trust increases cooperation, but increasing cognition-based trust to a certain level can reduce cooperation because of free-riding tendency. Moreover, these effects of trust are stronger for individuals who believed that other group members had more resources than they did. Thus, our study demonstrates that higher levels of trust do not necessarily encourage cooperation. Implications of these findings are discussed.

INTRODUCTION

Organizational research has documented many benefits of interpersonal trust, including cooperation (e.g., Golembiewski and McConkie, 1975; Kramer and Tyler, 1996; Messick, Wilke, Brewer, Kramer, Zemke, and Lui, 1983), extra-role contributions (e.g., McAllister, 1995; Podsakoff, MacKenzie, Moorman, and Fetter, 1990), enhanced teamwork (e.g., Dirks, 1999, 2000; Williams and Karau, 1991), and more effective leadership (e.g., Dirks and Ferrin, 2002). As a result, trust is often viewed as a panacea for organizational problems. It is thought to be the fulcrum on which collective action pivots, because when a member lacks confidence that others will act for the collective good, s/he is less likely to cooperate (Kramer, Hanna, Su, and Wei, 2001).

Yet, are the benefits of trust exaggerated in the management literature? Recent research has shown that trust can have limited benefits (e.g., Brockner, Siegel, Daly, Tyler, and Martin, 1997) or even negative consequences (e.g., Kramer, 1999; Langfred, 2004; McAllister, 1997). For instance, Brockner et al. (1997) found that employees' trust in their employer was less predictive of their behaviour after a

favourable employer decision than after an unfavourable decision. This finding suggests that trust matters more in crisis situations. Going further to document negative consequences, Langfred (2004) found that trust in self-managing teams reduced team performance because members decreased monitoring of each other's work.

The current study attempts to reconcile the positive and negative consequences of trust using a social dilemma game. Specifically, we argue that having a higher level of trust in other group members does not necessarily cause one to be more cooperative. Rather, we propose two factors that will influence this relationship – namely, the basis of one's trust and one's perception of the equality of resource endowments. First, we propose that the basis on which trust is built is an important moderator of the relationship between level of trust and cooperation. We adopt McAllister's (1995) distinction between cognition- versus affect-based trust and argue that different bases of trust affect cooperative behaviours differently because they are likely to induce different social decision heuristics (e.g., Allison and Messick, 1990), as we shall elaborate later.

We further argue that the interaction between level and basis of trust is moderated by individuals' perceived resource inequality, which refers to perceptions of one's resource endowment vis-à-vis other group members. Taking into account individuals' perceived resource inequality is important for two reasons. First, organizational members are often unequally endowed, perhaps as a result of different levels of expertise (e.g., Campion, Medsker, and Higgs, 1993) or status (e.g., Aquino and Reed, 1998). Second, social comparison is a ubiquitous phenomenon – people compare themselves with others on relevant dimensions in order to evaluate their own capacities and limitations (e.g., Festinger, 1954). In a social dilemma, a salient dimension for social comparison is the amount of resources group members possess. People's beliefs about how much resources they have compared to others should influence their perceptions of how critical their contributions are and hence, affect their cooperative behaviours.

In sum, this study aims to offer some novel insights to the growing body of research that questions whether more trust necessarily leads to more positive outcomes. First, this study underscores the importance of distinguishing between the different types of trust, as opposed to a general concept of trust. Second, this study highlights the role of social comparisons when considering the impact of trust. Next, we review the literature on social dilemma and trust, and present the theory development of our hypotheses.

THEORETICAL DEVELOPMENT

Social Dilemma in Teams

Social dilemmas are situations defined by two characteristics: (1) each individual receives a higher pay-off for a socially defecting choice than for a socially coop-

erative choice, no matter what others do; but (2) all individuals are better off if all cooperate than if all defect (Dawes, 1980). A social dilemma may be seen as a more general form of the Prisoner's Dilemma, a widely studied two-player game (Luce and Raiffa, 1957). Social dilemmas arise when collective action is required from a group of people, such as the contributions needed to create a public good, or the restraint required in harvesting to sustain a resource. The dilemma for people in these situations is whether to free-ride on others' cooperative actions or to contribute to the collective good.

Similarly, employees face many social dilemmas in their work because of team-based structures (e.g., Cooper, Dyck, and Frohlich, 1992; Ilgen and Pulakos, 1999; Sniezek, May, and Sawyer, 1990). For instance, in parallel teams (teams which are set up alongside the formal structure of the organization) (Cohen and Bailey, 1997; Lawler, 1999) where employees are responsible for their individual and team tasks (Cotton, 1993), a dilemma is created – should one allocate one's finite resources (e.g., time, effort) to the individual or the team task? An individual stands to gain most by devoting his/her resources to the individual task while free-riding on other group members' contributions to the team task. Yet, if all team members choose to free-ride, the team will fail.

Trust

Trust involves the willingness to make oneself vulnerable to another person despite uncertainty regarding motives, intentions, and prospective actions (Kramer, 1999; Mayer, Davis, and Schoorman, 1995). Mayer, Davis, and Schoorman for instance, defined trust as 'the willingness to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party's behaviours (1995, p. 712). Underlying these notions of trust is an individual's confidence in the goodwill of others and the expectation that others will act in beneficial ways (e.g., Pruitt, 1983).

What leads to trust? One distinction is between trust based primarily on cognition versus trust based primarily on affect (e.g., Lewicki and Bunker, 1995; Lewis and Weigert, 1985; McAllister, 1995). Cognition-based trust hinges on an appraisal of the other's track record – the competence and reliability this person has demonstrated in the past. Affect-based trust, on the other hand, arises from social interactions with others, and reflects confidence in others that develops along with concern for their welfare (Lewis and Weigert, 1985; Rempel, Holmes, and Zanna, 1985). These two bases of trust suggest that a person's propensity to cooperate with another can be rooted in rational expectations about the other's behaviour or in emotional rapport with that person (Drolet and Morris, 2000).

Research has demonstrated the discriminant validity of cognition- and affect-based trust. McAllister (1995) for instance, found that affect-based trust was posi-

tively related to peers' affiliative citizenship behaviour, but not cognition-based trust. This is consistent with the theory that affect-based trust should result in actions that express care and concern for the relationship, rather than actions that focus on task outcomes. Based on these findings, we expect cognition- and affect-based trust to influence cooperative behaviours in a social dilemma differently.

Trust and Cooperation in Social Dilemmas

Why does trust matter in social dilemmas? The 'sucker effect' theory asserts that people withhold their cooperative actions for fear that others will take advantage and not reciprocate (Orbell and Dawes, 1981). Being a 'sucker' is aversive to many people because it is an outcome that violates the norms of equity and reciprocity (Kerr, 1983). Thus, the 'sucker effect' theory suggests that individuals must trust that group members will not free-ride before they will contribute to the group. Consistent with this argument, many studies reported a positive correlation between people's expectations of other's cooperation and their own levels of cooperation (Messick et al., 1983; Pruitt and Kimmel, 1977; Schroeder, Jensen, Reed, Sullivan, and Schwab, 1983; Sniezek et al., 1990).

Although trust can increase cooperation by reducing fears of being a sucker, it may have an opposite effect of encouraging free-riding behaviour in other instances. Confidence that others will act cooperatively may diffuse one's responsibility to contribute to the group (Dawes, 1980; Kerr and Bruun, 1983; Kramer, Brewer, and Hanna, 1996; Messick and Brewer, 1983), or cause one to perceive one's contribution as less critical to group success. For instance, Fleishman (1988) found that individuals tend to contribute less to the public good and more to the private good when they expect others to contribute to the public good. He argued that when others act cooperatively, one is 'freer to engage in the preferred act (not giving) because others' contributions diminish the importance of one's own contribution' (Fleishman, 1988, p. 176).

Despite the documentation of these paradoxical effects of trust in the social dilemma literature, no empirical study has attempted to systematically understand or reconcile them. Thus, an important gap in the literature is to identify moderating conditions that determine whether higher levels of trust in others lead to more, or less cooperation by the individual. Earlier, we argued that distinguishing the basis of trust can help clarify these relationships. Specifically, we propose that cognition- and affect-based trust lead to different cooperative behaviours because they invoke different social decision heuristics (Allison and Messick, 1990) in individuals.

Social decision heuristics refer to rules of thumb for solving problems of social interdependence (Bazerman, Gibbons, Thompson, and Valley, 1994; Morris, Sim, and Girotto, 1998; Rutte, Wilke, and Messick, 1987). Examples of heuristics include the equal division rule in resource allocation tasks (e.g., Allison and

Messick, 1990), and the matching and control strategies in the Prisoner's Dilemma game (Morris et al., 1998). In mixed-motive games where there are multiple goals (e.g., group and individual goals), people often use these simple rules of thumb rather than the more complex calculations advanced in game theory. This is because there are computational and informational limits on human cognitive processes, and the use of heuristics simplifies the otherwise complex decision-making process (Kahneman, Slovic, and Tversky, 1982).

We propose two heuristics that are relevant to our investigation of cognition- and affect-based trust in a social-dilemma setting. The first heuristic, which we call 'criticality calculation' has an instrumental quality that involves cost minimization and profit maximization (e.g., Weber, 1978). This heuristic stems from a competitive motive to achieve one's goals in the most efficient manner, and offers several guiding rules. A basic rule for contributing under the 'criticality calculation' heuristic is that the individual must profit from the group's achievement. That is, one will not contribute if there is no personal gain from the group's achievement. If personal gains are expected from the group's achievement, individuals will contribute the least amount required to help the group achieve its goal. In other words, individuals adopting this heuristic determine the minimum level of contribution they perceive as critical to help the group bridge its gap in order to achieve its goal, so that individuals can also benefit from the group.

The second heuristic, which we call 'in-group sharing', has a more socio-emotional quality that derives from a cooperative motive to advance the interests of the group, insofar as the individual identifies with the group. Unlike the previous heuristic which is motivated by personal gain, the 'in-group sharing' heuristic guides one to be as generous as possible towards group members with whom one shares an important relationship. Using this rule, individuals determine the amount they are willing to contribute to the group by how much they identify with the group. The more they view the group as an in-group, the more generous they are in contributing to the group's welfare.

How do these two heuristics explain the impact of cognition- and affect-based trust on one's cooperative behaviour? We argue that when individuals' trust in their group members is based on task-related reliability and competence (i.e., cognition-based trust) and not on relationships (i.e., affect-based trust), they are likely to be motivated to advance their own interests and hence, apply the 'criticality calculation' rule to allocate their resources. Using this rule, one should be unwilling to contribute to the group when cognition-based trust in others is low, for two reasons. First, one's contribution alone (if others do not contribute) may not be sufficient to achieve the group goal. Second, even if one's contribution does help achieve the group goal, one loses out because other members will free-ride and benefit from his/her contribution. As the level of cognition-based trust in others increases, one is more likely to cooperate because there is less fear that others will free-ride on one's contribution (i.e., sucker effect). Moreover, by helping to meet the group's

goal, one also reaps personal benefits from the group's achievement. However, when cognition-based trust increases to a level to suggest that group members will contribute significantly to the group, individuals may rely on their group members and reduce their contributions. This is because they no longer perceive their contributions as critical to achieving the group's goal and therefore, channel resources to their individual tasks (e.g., Kerr and Bruun, 1983) to maximize their gains.

On the other hand, we argue that affect-based trust is likely to encourage the use of the 'in-group sharing' heuristic in the decision-maker. This is because affect-based trust reflects a deeper social relationship, which is more 'communal' rather than 'exchange' in nature (Clark and Mills, 1979). Members in a communal relationship do not view the benefits they give or receive as part of a *quid pro quo* exchange, but as a way to reaffirm the relationship by meeting the needs and advancing the goals of parties in the relationship. Applying the 'in-group sharing' heuristic, the more valued the relationships, the more resources individuals are willing to contribute to the group in order to benefit their group members. Therefore, we expect that the higher someone's affect-based trust in others, the more likely it is that they will contribute to the group.

Based on our foregoing arguments, our first hypothesis argues that:

Hypothesis 1: The relationship between the level of one's trust in others and cooperative behaviour is moderated by the basis of that trust, such that:

Hypothesis 1a: For cognition-based trust, there is an inverted U-shape relationship between the level of one's trust in others and cooperative behaviour.

Hypothesis 1b: For affect-based trust, there is a monotonic positive relationship between the level of one's trust in others and cooperative behaviour.

In the next section, we consider how members' perceptions of their resource endowment vis-à-vis their group members affect the relationships proposed in H1.

Perceived Inequality in Resource Endowment

A major assumption underlying most social dilemmas studies is individuals' equal capacity to contribute to the collective good. Yet, in reality, there is often uneven endowment of resources among individuals. In the context of work teams for instance, members can possess unequal capacities to contribute to the group because of heterogeneity in abilities, skills, and expertise (e.g., Campion et al., 1993), or because of status differences that preclude some from accessing certain organizational resources (e.g., Aquino and Reed, 1998). Though real inequality is common, perceived inequality may be even more prevalent. Separating the perception of inequality from the objective state of inequality (e.g., Aquino, Steisel,

and Kay, 1992; Rapoport, 1988; Rapoport, Bornstein, and Erev, 1989) is important because it recognizes that people's behaviours are ultimately influenced by their perceptions, which may not coincide with the objective reality. It is also consistent with social comparison theory, which asserts that individuals gain important knowledge about themselves through comparisons with other people (Festinger, 1954).

In our next hypothesis, we propose that perceived resource endowment inequality will influence the relationship between trust level and cooperative behaviours for cognition-based trust, but not for affect-based trust. This is because perceived resource inequality is likely to influence one's perception of criticality (e.g., Rapoport, 1988), which is more relevant to the 'criticality calculation' heuristic, rather than the 'in-group sharing' heuristic. To simplify our argument, we focus our discussion of the effect of perceived inequality on moderate and high levels of trust. We omit the low trust level (for both cognition- and affect-based trust) because we expect that regardless of perceptions of resource endowment, individuals will not cooperate when they have little trust in others. We develop our rationale in greater detail below.

In H1, we argued that one's cognition-based trust in group members is likely to evoke the 'criticality calculation' decision rule, such that at a high level of cognition-based trust, individuals may reduce their contribution to the group and free-ride on group members' contribution. In our second hypothesis, we argue that this negative relationship between moderate and high levels of cognition-based trust and cooperation is exacerbated when individuals perceive themselves as having relatively fewer resources compared to their group members. This is because 'poorer' members are likely to see themselves as less critical in providing for the group's welfare (e.g., Rapoport, 1988). When they are also presented with information on the reliability and competence of their richer group members (i.e., high cognition-based trust), their perceived criticality is further diminished, leading to greater free-riding tendency (i.e., lower cooperation).

On the contrary, for individuals who perceive themselves as having more resources than their group members, we argue that the negative relationship between moderate and high levels of cognition-based trust and cooperation will be attenuated. This is because perceiving other group members as relatively poorer will enhance one's perceived criticality (e.g., Rapoport, 1988), which should encourage cooperation. Even when others are expected to contribute to the group (i.e., high cognition-based trust), those who believe they are richer may still view their input as indispensable because they have more resources to affect group outcomes. Hence, increasing one's cognition-based trust in group members should result in fewer free-riding behaviours when others are seen as poorer.

For affect-based trust, we argue that the 'in-group sharing' heuristic evoked is not influenced by perceptions of resource endowment inequality. This is because the goal underlying the heuristic is to maximize the group's welfare and not one's

personal gains. This is consistent with Clark's (1984) finding that individuals in communal relationships do not keep track of individual inputs into joint tasks, unlike members in exchange relationships. Hence, whether one perceives other group members as richer or poorer is less important for deciding how much to contribute to the group when the motivation is to maintain and affirm relationships among group members. As such, the positive relationship between the level of affect-based trust and one's cooperation should not be affected by perceptions of inequality in resource endowment.

> *Hypothesis 2: Perception of inequality in resource endowment will influence the relationship between the level of one's trust in others and cooperative behaviour depending on the basis of that trust, namely:*

> *Hypothesis 2a: Under the condition of moderate to high level of cognition-based trust, the negative relationship between one's trust in others and contribution to the group is stronger for individuals who perceive they have fewer resources, and weaker for those who perceive they have more resources.*

> *Hypothesis 2b: Under the condition of moderate to high level of affect-based trust, the positive relationship between one's trust in others and contribution to the group is not affected by perception of inequality in resource endowment.*

We have argued that the basis of trust and perceived resource inequality are important factors that affect the relationship between trust level and cooperation. Next, we describe a study to test our hypotheses and conclude with a discussion of our findings.

METHOD

Participants

A total of 166 Chinese undergraduate students (22% males) from a large business school in Singapore participated in this study. Students were given course credits for participating in this research. They were also given a choice to complete an equivalent project for the same amount of credits if they did not wish to participate in the research.

Design

We tested our hypotheses in an experiment using two games. Both games adopted the same task, but had different experimental designs. In the first game (to test for H1), we used a 3 (level: low versus moderate versus high trust) × 2 (basis: cognition- versus affect-based trust) between-subjects design. The sample size was 166 for the first game. In the second game (to test for H2), we used a 2 (level: mod-

erate versus high trust) × 2 (basis: cognition- versus affect-based trust) × 2 (resource: perceived low versus high resource endowment) between-subjects design. The sample size was 90 for the second game, since we focused only on the moderate and high trust level conditions.

Task

We adapted the social dilemma task used in Sniezek et al.'s (1990) study. Participants were given 40 units of resources to distribute between a group task (with three members, including the subject) and an individual task. Conflict between personal and collective interest was induced through the reward schedule. Participants were told that points earned from their individual task were equal to their allocation to that task, whereas points earned by the group from the group task were twice the total number of units of resources allocated to the group task. The 'doubling' effect of the group contribution was to reflect synergies of group work (e.g., Sniezek et al., 1990; Steiner, 1972). The group points were equally divided among group members, regardless of members' individual contribution to the group task. Participants' overall performance was the sum of points gained from the individual task and the group task.

We made two modifications to the original task used by Sniezek et al. (1990). First, we imposed an additional rule that individuals' contributions to their individual task must exceed 10 units, and that groups' total contributions to the group task must exceed 30 (10 × 3 since there are three group members), before points would be awarded. This was to enhance the risk that one's contributions to the group may be wasted if the group as a whole did not achieve enough points to meet the minimum performance standard, thereby heightening the sense of vulnerability inherent in the concept of trust. Second, we transformed Sniezek et al.'s design from one that merely required participants to write down their levels of contribution to one that required them to physically allocate the resources between the tasks. To do this, we provided each participant with 40 small square pieces of cards representing their resources, and two 9 × 10 grids representing the individual task and the group task. To contribute a resource to either task, participants had to paste a card onto the respective grids. To render the task more interesting, we told participants that each card must contain a letter from the English alphabet that would be pasted on the grid to form the title of their favourite movies. The movie title for the individual task was chosen by the participant, while that for the group task was based on his/her choice from a pre-determined list of five movies. To instill group identity, we told participants that their group membership was based on the choice of movie – participants who selected the same movie were assigned to the same group. Research has shown that classifying individuals into groups based on a trivial criterion can instill a sense of group identity (e.g., Billig and Tajfel, 1973; Tajfel, Billig, Bundy, and Flamen, 1971).

Procedure

Twelve sessions consisting of 12 to 15 participants were conducted using identical procedures and materials. Participants were seated individually and interaction was not allowed, in order to avoid any potential group-level contamination or confound.

At the start of the experiment, participants received a pre-experimental survey comprising two sections. The first section contained questions that would be subsequently used to manipulate the type of trust. The second section required participants to choose their favourite movie from a list of five movie titles. When all participants had completed the survey, we collected them and gave out a personality survey to act as a filler. While participants were completing the personality survey, we pretended to sort participants into groups based on the movie title they had selected, and to transfer their responses to the first section of the survey onto an 'information sheet'.

When participants finished the personality survey, we told them that they were assigned into groups of three based on their movie selection. We then gave out an information sheet to each participant, containing information about their two group members. We told participants that the information was based on their members' 'responses' to the questions in the pre-experimental survey. In fact, the information we provided was manipulated according to the condition participants were in, rather than actual feedback. We emphasized to participants that since the information sheet was the only source of information they had about their group members, they should read it carefully.

Next, we explained the objective and the rules of the task. The participants were told that the objective was to maximize their overall performance. To ensure participants understood the reward schedule, we conducted a short quiz and reviewed the answers together. We then assessed the manipulation checks for trust, before giving participants 15 minutes to allocate their resources in the first game.

To test H2, we conducted a second game in the moderate and high trust conditions. The participants were told to play the second game independently of the decisions they made in the first game, and were given a short break between the two games. The only difference in the second game was that we manipulated participants' perceived level of resources relative to those of their group members. Before the participants started on the second game, they answered a question to assess the effectiveness of the resource equality manipulation. The participants were debriefed at the end of the experiment.

Manipulations

Level and basis of trust. We manipulated participants' trust in their group members by providing them information on the trustworthiness of their group members. Subjects completed a pre-experimental survey that provided either task-related (for

cognition-based trust condition) or relationship-related (for affect-based trust condition) information. In the cognition-based trust condition, participants read a scenario where they had two deadlines to meet – one for an individual task that they were solely responsible for, and the other a group task that they were jointly responsible for with co-workers. They were then asked to allocate ten hours between the two tasks. This question was designed to reflect their track-record of responsibility toward group work.

For the affect-based trust condition, participants responded to five questions asking for their emphasis on building and maintaining relationships in teams in general. These items were adopted from the team roles preferences scale by McShane and Von Glinow (2000) that assessed one's role as a 'harmonizer' and 'encourager' in teams. Examples of items are 'I am usually the person to build and maintain relationships within the group', and 'I am usually the person who helps other team members overcome their disagreements'. Questions were answered on a 10-point Likert scale (1 = strongly disagree to 10 = strongly agree).

To manipulate the level of cognition-based trust, participants in this condition were given 'feedback' on how their group members allocated the ten hours between the individual and the group tasks. To invoke a high level of cognition-based trust in group members, participants were shown members' responses which reflected high levels of contribution to group work (Member 1 : 10 hours to group, 0 to individual; Member 2 : 9 hours to group, 1 to individual). In the moderate cognition-based trust condition, participants were told that Members 1 and 2 allocated 6 and 7 hours, respectively, to the group task. In the low cognition-based trust condition, participants were told that members 1 and 2 allocated 1 and 0 hour, respectively, to the group task.

Similarly, participants in the affect-based condition were given 'feedback' on how their group members responded to each of the five questions in the pre-experimental survey. In the high affect-based condition, participants were shown members' responses that indicated a highly relational emphasis, with each member reporting either 9 or 10 on the Likert scale for all questions. In the moderate affect-based trust condition, members' responses for the questions were 6 s and 7 s. For the low affect-based condition, responses were 1 s and 2 s, indicating a low relational orientation.

Perceived resource inequality. In the second game, participants were told that each group member would receive a different amount of resources. In the perceived low-resource condition, participants were told that group members would be randomly assigned to receive 40, 50, or 60 units of resources. In the perceived high-resource condition, the levels of resources assigned were 20, 30, and 40 units. In fact, all subjects received 40 units of resources. However, given our instructions, those in the low-resource condition would perceive they had the least resources (compared to others who had 50 and 60 units), while those in the high-resource

condition would perceive they had the most resources (compared to others who had 20 and 30 units).

Measures

Dependent variable. For both games, the dependent variable is the amount of resources contributed to the group task, measured by counting the number of cards pasted on the grid representing the group task. This number ranged from zero to 40.

Manipulation checks. We assessed the effectiveness of our trust manipulations with four items each for cognition- and affect-based trust, adapted from McAllister (1995). The participants were asked for their level of trust in their group members on a 7-point scale (1 = strongly disagree to 7 = strongly agree). Examples of items measuring cognition-based trust in group members are: 'You can rely on them to do a major portion of the group work'; 'They are people you can trust to get the group work done'. Sample items for affect-based trust are: 'If you share your problems with them, you know they will respond caringly'; 'You can talk freely to them about your difficulties and know that they will want to listen'. All the participants reported both types of trust regardless of the trust condition they were in. This was to verify whether our trust manipulations affected participants' cognition- and affect-based trust ratings independently.

To assess our manipulation of perceived resource inequality, we asked the participants whether they had the greatest or the lowest amount of resources in the group.

Analyses

We conducted exploratory factor analyses (principal components with varimax rotation) on the eight items of trust to test their discriminant validity, and conducted analyses of variance to test our hypotheses.

RESULTS

Manipulation Checks

Results of our exploratory factor analysis yielded two distinct factors (total variance extracted = 67%). All items correctly loaded to their respective factor (factor loadings ranged from 0.66 to 0.85). Cronbach's alphas were 0.85 for cognition-based trust, and 0.81 for affect-based trust, suggesting that the two constructs were distinct.

Table 1 presents the mean cognition- and affect-based trust ratings in the different conditions. ANOVA results show that the subjects in the high cognition-

Table 1. Mean scores of manipulation checks for cognition- and affect-based trust conditions[a,b]

Trust basis	Manipulation check measures	Level of trust		
		Low	Moderate	High
Cognition	Cognition-based trust	$1.68_{c,1}$ (0.64)	$4.25_{c,2}$ (1.71)	$5.54_{c,3}$ (1.22)
	Affect-based trust	$1.29_{d,1}$ (0.59)	$2.28_{d,2}$ (1.45)	$3.33_{d,3}$ (2.16)
Affect	Cognition-based trust	2.29_{e} (1.50)	$3.75_{e,4}$ (1.85)	5.62_{e} (1.40)
	Affect-based trust	2.06_{f} (1.09)	$4.69_{f,4}$ (0.97)	5.25_{f} (1.38)

Notes: Figures in parentheses are standard deviations.

[a]Means in a row (across trust levels) sharing alphabetical subscripts are significantly different at $p < 0.05$ using repeated contrasts.

[b]Means in a cell (trust level × basis) sharing numerical subscripts are significantly different at $p < 0.05$ using paired-sample t-test.

based trust condition reported a higher level of cognition-based trust (M = 5.54, SD = 1.22) than those in the moderate cognition-based trust condition (M = 4.25, SD = 1.71), who in turn reported a higher level of cognition-based trust than those in the low cognition-based trust condition (M = 1.68, SD = 0.64), $F_{(2,76)} = 55.10$, $p < 0.00$, $\eta^2 = 0.59$. Likewise, the subjects in the high affect-based trust condition reported a higher level of affect-based trust (M = 5.25, SD = 1.38) than those in the moderate affect-based trust condition (M = 4.69, SD = 0.97), who in turn reported a higher level of affect-based trust than those in the low affect-based trust condition (M = 2.06, SD = 1.09), $F_{(2,84)} = 60.56$, $p < 0.00$, $\eta^2 = 0.59$.

Next, we conducted paired-sample t-tests of subjects' ratings of cognition- and affect-based trust ratings in each of the six experimental cells (level × basis of trust). These analyses assessed whether subjects perceived different levels of cognition- and affect-based trust when given information that was supposed to cue only one type of trust. Results showed that in the low cognition-based trust condition, cognition-based trust rating (M = 1.68, SD = 0.64) was higher than affect-based trust rating (M = 1.29, SD = 0.59), $t(20) = 2.41$, $p < 0.05$. Likewise, in the moderate cognition-based trust condition, cognition-based trust rating (M = 4.25, SD = 1.71) was higher than affect-based trust rating (M = 2.28, SD = 1.45), $t(26) = 5.94$, $p < 0.00$. Lastly, in the high cognition-based trust condition, cognition-based trust rating (M = 5.54, SD = 1.22) was higher than affect-based trust rating (M = 3.33, SD = 2.16), $t(30) = 5.22$, $p < 0.00$. These results suggest that subjects given task-related feedback reported higher levels of cognition-based than affect-based trust in group members.

For affect-based trust manipulation, results showed that in the low affect-based trust condition, affect-based trust rating (M = 2.06, SD = 1.09) did not differ from cognition-based trust rating (M = 2.29, SD = 1.50), $t(26) = 0.81$, ns. Likewise, in the high affect-based trust condition, affect-based trust rating (M = 5.25, SD = 1.38) was not significantly different from cognition-based trust rating (M = 5.62,

SD = 1.40), t(25) = 1.32, ns. Only in the moderate affect-based trust condition was affect-based trust rating (M = 4.69, SD = 0.97) higher than cognition-based trust rating (M = 3.75, SD = 1.85), t(33) = 3.08, p < 0.01. These results raise some caution in interpreting the effects of high affect-based trust. At the same time, they also raise some interesting issues regarding the dynamics of cognition- and affect-based trust, which we will discuss later.

Perceived resource inequality. All except two subjects chose the correct option when asked if they received the least or the most resources in the group [χ^2(df = 2) = 90, p < 0.00], thus showing support for our resource inequality manipulation. Our final sample size for H2 was 88, after excluding the two subjects who failed the manipulation check.

Hypotheses Testing

H1 posits a two-way interaction between level and basis of trust such that there is an inverted U-shape relationship for cognition-based trust, but a monotonic positive relationship for affect-based trust. Table 2A presents the mean contribution to the group across the different conditions. ANOVA results in Table 2B showed a significant two-way interaction between level and basis of trust, F(2, 160) = 3.02, p = 0.05, η^2 = 0.04. Analyses of simple effects showed that higher affect-based trust increased contribution, F(2, 84) = 6.49, p < 0.00, η^2 = 0.13; but higher cognition-based trust did not, F(2,76) = 0.60, ns. We further conducted t-tests to compare the means of contribution across the three levels of trust conditions. As hypothesized and shown in Table 2A, contribution to the group was greater in the high affect-based trust condition (M = 25.92, SD = 19.79) than in the moderate affect-based trust condition (M = 19.79, SD = 7.2), t(58) = 3.18, p < 0.00. However, contribution to the group was not significantly different between the moderate and the low affect-based trust conditions (M = 18.67, SD = 9.06), t(59) = 0.54, ns. For cognition-based trust, contributions to the group did not differ significantly across the three levels of trust, although they were in the expected direction. Specifically, contribution in the high cognition-based trust condition (M = 19.23, SD = 9.45) was slightly lower than in the moderate cognition-based trust condition (M = 20.56, SD = 7.56), t(56) = 0.59, ns, while contribution in the moderate cognition-based condition was higher than in the low cognition-based trust condition (M = 17.67, SD = 10.13), t(46) = 1.13, ns. Taken together, H1 received partial support.

H2 proposes a three-way interaction between perceived resource inequality, level and basis of trust, such that perceptions of resource inequality will influence the relationship between trust level and cooperative behaviours for cognition-based trust, but not for affect-based trust. Table 3A presents the mean contribution to the group across the different conditions. ANOVA results in Table 3B showed that perceived resource inequality had a significant main effect on individuals' contri-

Table 2A. Mean contribution to the group for level and basis of trust (Game 1)[a,b]

Trust basis	Level of trust		
	Low	Moderate	High
Cognition	17.67 (10.13)	20.56 (7.56)	19.23_1 (9.45)
Affect	18.67 (9.06)	19.79_c (7.20)	$25.92_{c,1}$ (7.66)

Notes: Figures in parentheses are standard deviations.
[a] Means in a row (across trust levels) sharing alphabetical subscripts are significantly different at $p < 0.05$ using repeated contrasts.
[b] Means in a column (across trust basis) sharing numerical subscripts are significantly different at $p < 0.10$ using t-test.

Table 2B. ANOVA results for level × basis of trust on contribution (Game 1)

Variable and source	df	MS	F	Partial η^2
Level of trust[a]	2	253.03	3.51*	0.04
Basis of trust[b]	1	216.86	3.01†	0.02
Level × basis of trust	2	217.21	3.02*	0.04
Error	160	72.03		

Notes: **$p < 0.01$ *$p < 0.05$ †$p < 0.10$.
[a] 0 = Low, 1 = Moderate, 2 = High.
[b] 1 = Cognition-based, 2 = Affect-based.

bution to the group, $F(1,80) = 16.43$, $p < 0.00$, $\eta^2 = 0.17$. As expected, subjects who perceived they had more resources contributed more to the group ($M = 25.27$, $SD = 7.89$) than those who perceived they had fewer resources than others ($M = 16.89$, $SD = 8.72$), $t(86) = 4.70$, $p < 0.00$. Results in Table 3B also demonstrated a significant three-way interaction between perceived resource equality, level and basis of trust, $F(1, 80) = 5.34$, $p < 0.05$, $\eta^2 = 0.06$. A separate two-way ANOVA under low and high perceived resource conditions show that the two-way interaction between level and basis of trust was significant under a perceived low resource condition, $F(1, 44) = 8.04$, $p < 0.00$, $\eta^2 = 0.15$; but not significant under a perceived high resource condition, $F(1, 38) = 0.21$, ns. As expected and shown in Table 3A, under a perceived low resource condition, contribution to the group in the high cognition-based trust condition ($M = 14.00$, $SD = 9.14$) was marginally lower than in the moderate cognition-based trust condition ($M = 20.33$, $SD = 7.62$), $t(17) = -1.64$, $p = 0.10$. On the other hand, contribution in the high affect-based trust condition ($M = 23.25$, $SD = 6.63$) was higher than that in the moderate affect-based trust condition ($M = 14.25$, $SD = 8.35$), $t(26) = 2.72$, $p < 0.01$. In the

Table 3A. Mean contribution to group for level of trust, basis of trust, and perceived resource level (Game 2)[a,b]

Trust basis	Perceived resource level	Level of trust	
		Moderate	High
Cognition	Low	20.33_c (7.62)	$14.00_{c,1}$ (9.14)
	High	21.50 (4.72)	22.09_1 (9.35)
Affect	Low	$14.25_{d,2}$ (8.35)	$23.25_{d,3}$ (6.63)
	High	28.33_2 (9.01)	28.15_3 (5.70)

Notes: Figures in parentheses are standard deviations.

[a] Means in a row (across trust levels) sharing alphabetical subscripts are significantly different at $p < 0.10$ using t-test.

[b] Means in a cell (trust level × basis) sharing numerical subscripts are significantly different at $p < 0.10$ using t-test.

Table 3B. ANOVA results for level × basis of trust × perceived resource inequality on contribution (Game 2)

Variable and source	df	MS	F	Partial η^2
Level of trust[a]	1	11.99	0.20	0.00
Basis of trust[b]	1	326.58	5.31*	0.06
Resource inequality[c]	1	1009.76	16.43**	0.17
Level × basis of trust	1	268.44	4.37*	0.05
Basis × resource inequality	1	119.82	1.95	0.02
Level × resource inequality	1	6.44	0.11	0.00
Level × basis × resource inequality	1	328.24	5.34*	0.06
Error	80			

Notes: **$p < 0.01$ *$p < 0.05$.

[a] 1 = Moderate, 2 = High.

[b] 1 = Cognition-based, 2 = Affect-based.

[c] 1 = Perceived fewer resources than others, 2 = Perceived more resources than others.

perceived high resource condition however, contribution to the group did not differ between the high (M = 22.09, SD = 9.35) and moderate cognition-based trust conditions (M = 21.50, SD = 4.72), t(17) = 0.16, ns. Likewise, contribution to the group was not different between the high (M = 28.15, SD = 5.70) and moderate affect-based conditions (M = 28.33, SD = 9.01), t(20) = 0.57, ns. This pattern of results only partially supports our hypothesis that perceived resource inequality will affect cognition-based but not affect-based trust. Instead, our results show that both cognition- and affect-based trust matter more for individuals who perceive themselves as relatively poorer, and did not matter for those who see themselves as relatively richer.

DISCUSSION AND CONCLUSION

The key assumption underlying most of the research on trust is that it elicits co-operative behaviour. Although organizational scholars have begun probing the boundary conditions of this assumption, our understanding of when trust might not lead to cooperative behaviours remains limited.

Our findings in general support our contention that the effect of trust on cooperative behaviours depends on (1) the basis of that trust, and (2) perceptions of inequality in the resource endowment of individuals in the group. As anticipated, the relationship between cognition-based trust and cooperative behaviour is not a monotonically increasing one. Even though individuals may reciprocate at a moderate level of cognition-based trust, they have the tendency to free-ride when they perceive others to be very reliable in contributing to group work (high cognition-based trust). In contrast, higher levels of affect-based trust did not lead to more free-riding behaviour but instead, resulted in more contribution to the group. Furthermore, our study also demonstrates that trust matters more for individuals who perceive themselves as having fewer resources, compared to those who perceive themselves as having more resources. This implies that when individuals are better endowed than their group members, trust plays a less important role in determining their cooperative behaviors. This is consistent with findings by Brockner et al. (1997), which indicate that trust matters less when outcome favourability is high. We discuss the theoretical implications of these findings in greater detail below and offer directions for future research.

Theoretical Implications

Dimensionality of trust. Most research on trust has used the construct in a broad and general sense, typically relying on Mayer et al.'s (1995) definition. This definition, while capturing the essence of trust, is silent on how the expectation of beneficial actions from the other party is derived. Does it arise from an instrumental, task-related basis that is devoid of socio-emotional bonds (e.g., when strangers come together for the first time on a project)? Or does it arise from affective relationships involving genuine care and concern (e.g., among good friends)? Our results replicated previous research that distinguished between cognition- and affect-based trust (e.g., McAllister, 1995) with a Chinese sample and further demonstrated that trust built on different bases led to different cooperative behaviours in a social dilemma. These findings suggest that delineating the two bases of trust is meaningful in the Chinese context, and more importantly, can enhance the precision of trust research.

Our results also highlight an interesting relationship between cognition- and affect-based trust that may run counter to existing theories on trust development.

For instance, Western scholars (e.g., Lewicki and Bunker, 1996; McAllister, 1995) have argued that affect-based trust is built upon cognition-based trust, such that individuals' baseline expectations for competence and reliability must be met before deeper relationships can be formed (McAllister, 1997). This suggests that one should build trust by first demonstrating one's trustworthiness in terms of capability and dependability.

Yet, our study implies that this need not be so, at least not in the Chinese context. Drawing from our finding that affect-based trust appears to have a 'spillover' effect on cognition-based trust, it seems that by building high levels of affect-based trust, one may be able to foster cognition-based trust as well. To verify this phenomenon, we conducted an additional test. Specifically, when we entered level of affect-based trust manipulation into an ANOVA to predict cognition-based trust ratings and controlled for affect-based trust ratings (as covariate), affect trust manipulation had a significant effect on cognition-based trust ratings, $F_{(2,83)} = 7.78$, $p < 0.00$. However, when we entered level of cognition-based trust manipulation as a predictor of affect-based trust ratings and controlled for cognition-based trust ratings (as covariate), cognition trust manipulation did not have a significant impact on affect-based trust ratings, $F_{(2,75)} = 1.24$, ns. These results show that when Chinese participants were given relationship-oriented information to induce affect-based trust in their group members, they were also more likely to perceive greater cognition-based trust in these group members. In contrast, there was less of such a 'spillover' effect from cognition- to affect-based trust. This asymmetry in the 'spillover' effects of one type of trust onto the other type of trust raises interesting questions about trust development in the Chinese context, and whether it differs substantively from trust development in the Western context.

Another interesting question is whether the differential impact of cognition- and affect-based trust found in our study can be observed in a Western context? We believe so, since our arguments were based on general psychological theories that were not specifically aimed at the Chinese value system. Moreover, Johnson-George and Swap (1982) similarly observed that reliableness, or cognition-based trust, is 'more superficial and less special' than emotional trustworthiness. Nonetheless, we speculate that the extent of the differential impact between affect- and cognition-based trust on cooperative behaviours may differ across cultures. This is consistent with Chen, Chen, and Meindl's (1998) argument that cognition-based trust is more important in eliciting cooperation in individualistic cultures, while affect-based trust is more valued in collectivistic cultures.

Perceived resource inequality. Another critical insight from this study is that trust may not elicit the same behaviour from individuals who perceive themselves as being differently endowed from others. Consistent with the theory of relative deprivation (e.g., Crosby, 1976), individuals who are less deprived (i.e., those who possess more resources than their similar others) contribute more to the group, regardless

of the trust condition. More importantly, our study shows that more deprived individuals do not necessarily react negatively to their counterparts, as the existing theory of relative deprivation would suggest. Two important factors to consider are the level and basis of trust one has in other group members. Individuals with high affect-based trust in others appeared willing to sacrifice their limited resources, which is in stark contrast to the free-riding behaviours exhibited by individuals who had high cognition-based trust. This finding is consistent with research that has shown that the Chinese people are more likely than Westerners to sacrifice self-gain to benefit in-group members when allocating rewards (e.g., Chen, Brockner, and Katz, 1998; Leung and Bond, 1984; Leung and Iwawaki, 1988) and less likely to socially loaf (Earley, 1989). Our study makes a further contribution to this body of work by hinting at the possible psychological dimension at work – Chinese people exhibit in sacrificing behaviour among in-group members because of the high level of affect-based trust.

Our finding that perceived resource inequality interacts with the level and basis of trust to affect cooperative behaviours may also be interpreted in the light of Chen, Au, and Komorita's (1996) social dilemma study. Specifically, Chen et al. (1996) found a two-way interaction between criticality and certainty on cooperation, such that when criticality is low, certainty has a slight negative impact on cooperation, whereas when criticality is high, certainty has a positive impact. Our study yields a similar finding in that under a low resource condition (where criticality is presumed to be low), increasing cognition-based trust (which is analogous to increasing certainty of other people's choice) will reduce cooperation. What our study further suggests is that if the basis of certainty changes from a task- to a socio-emotional one (based on shared values and interpersonal affect), the negative relationship between certainty and cooperation may not hold. Instead, as illustrated by our study, having greater certainty that people in the group cherish the relationship (i.e., increasing affect-based trust) could increase cooperation.

Practical Implications

This study provides some insights into how managers and organizations can use trust to encourage cooperative behaviours amongst employees. As a start, we concur with Whitener, Brodt, Korsgaard, and Werner (1998) that managers are important initiators of trust, and that their behaviours have a direct impact on employees' trust in their managers. Our study further highlights two critical considerations for managers in building trust with their subordinates. First, managers should be aware of the importance of affect- and cognition-based trust, and how their behaviours contribute to the formation of each type of trust. Under this framework, a competent and task-oriented manager should, for instance, be aware of the potential risks associated with the lack of affect-based trust with his/her subordinates, and hence, focus efforts in cultivating personal relationships. These

efforts could take the form of increased communication of the managers' values that are aligned with those of the subordinates, and the demonstration of genuine concern for the welfare of the subordinates (e.g., Whitener et al., 1998).

Second, managers should also pay greater attention to the individual characteristics of their subordinates. For instance, when leading a team of subordinates with varying levels of ability or capacity to contribute, managers should emphasize team-building activities in order to cultivate affect-based trust so that team members are less likely to exploit or feel exploited when completing the team assignment.

Limitations

Three limitations of our work merit some discussion here. First, while our study involves affect-based trust, the experiment we conducted did not allow for the formation of real relationships since participants did not get to meet their members at all. Although this method of trust manipulation is commonly practised in laboratory studies (e.g., Dirks, 2000) and our manipulation check showed that participants developed some sense of identity and bonding with their team members, more realism can be injected by using research designs that involve real work teams.

Second, trust was manipulated by providing information on the trustworthiness of group members. We acknowledge that a person's perception of another's trustworthiness may not necessarily translate into trust in the other person. Other factors, such as individual differences in the propensity to trust, are likely to influence the formation of trust. Nonetheless, our manipulation checks demonstrated that participants' ratings of their trust in their group members varied across the three levels of trust manipulation in the right direction, thus suggesting that our manipulations were generally successful. However, as mentioned earlier, we noted that the manipulation of high affect-based trust had an inadvertent impact on subjects' cognition-based trust as well. This finding legitimately raises the concern of whether our results are interpretable, given that the manipulation of high affect-based trust appeared to be confounded with cognition-based trust. We do not think that this was entirely because of methodological problems, since our manipulation of affect-based trust focused purely on the relationship orientation of team members and did not make any reference to prior track records or task- or competency-related issues. Furthermore, in the moderate affect-based condition, subjects did report significantly higher affect-based trust than cognition-based trust, thus suggesting that the spillover effect did not occur strictly because of methodological flaws. Rather, it suggests some intriguing future research on the dynamics between affect- and cognition-based trust in the trust development process.

Third, the relatively small sample size in game 2 raised caution on the reliability and stability of our results. Future studies with larger sample sizes are important to verify our current findings.

Future Research Directions

We urge future research to explore the suggestions and improvements mentioned above. In particular, given that our study was conducted using only Chinese subjects, future research should attempt to replicate the study in a different cultural context to test its generalizability. Furthermore, cross-cultural studies can be conducted to further understand the similarities and differences in the trust development processes in the Chinese and Western contexts. In addition, we suggest that future research designs attempt to manipulate both types of trust simultaneously, so that the interactive dynamics between affect- and cognition-based trust at different levels can be more systematically examined. This will enhance the practical impact of trust theories since both types of trust are likely to coexist in real life.

Future research should also assess the social decision heuristics used in the various trust conditions to verify the theoretical explanations of our hypotheses. This will help refine our understanding of why different bases of trust influence cooperative outcomes differently.

Lastly, we urge scholars to continue to probe at other boundary conditions of trust. Various individual differences such as value-orientation, personality, propensity to trust, and regulatory focus (e.g., Higgins, 1998) could be considered for their potential moderating effects on the relationship between trust and cooperative behaviour.

In conclusion, our research shows that increasing trust does not necessarily increase one's cooperative behaviours. We have demonstrated that the basis of trust and perceived resource inequality are two important moderators of the impact of trust. We urge future research to examine more circumstances where trust can have limited benefits, or even negative consequences, so that a deeper understanding of trust and its boundary conditions can be gained.

AUTHOR NOTE

REFERENCES

Allison, S. T. and Messick, D. M. (1990). 'Social decision heuristics in the use of shared resources'. *Journal of Behavioral Decision Making*, **3**, 3, 195–204.

Aquino, K. and Reed II., A. (1998). 'A social dilemma perspective on cooperative behavior in organizations: The effects of scarcity, communication, and unequal access on the use of a shared resource'. *Group and Organization Management*, **23**, 665–87.

Aquino, K., Steisel, V. and Kay, A. (1992). 'The effects of resource distribution, voice, and decision framing on the provision of public goods'. *Journal of Conflict Resolution*, **36**, 665–87.

Bazerman, M., Gibbons, R., Thompson, L. and Valley, K. (1994). 'When and why do negotiators outperform game theory?' In Stern, R. N. and Halpern, J. (Ed.), *Nonrational Elements of Organizational Decision Making*. Ithaca, NY: Industrial and Labor Relations Press, (pp. 78–98).

Billig, M. and Tajfel, H. (1973). 'Social categorization and similarity in intergroup behavior'. *European Journal of Social Psychology*, **3**, 27–52.

Brockner, J., Siegel, P. A., Daly, J. P., Tyler, T. and Martin, C. (1997). 'When trust matters: The moderating effect of outcome favorability'. *Administrative Science Quarterly*, **42**, 558–83.

Campion, M. A., Medsker, G. J. and Higgs, A. C. (1993). 'Relations between work group characteristics and effectiveness: Implications for designing effective work groups'. *Personnel Psychology*, **46**, 823–50.

Chen, X. P., Au, W. T. and Komorita, S. S. (1996). 'Sequential choice in a step-level public goods dilemma: The effects of criticality and uncertainty'. *Organizational Behavior and Human Decision Processes*, **65**, 37–47.

Chen, Y., Brockner, J. and Katz, T. (1998). 'Toward an explanation of cultural differences in ingroup favoritism: The role of individual versus collective primacy'. *Journal of Personality and Social Psychology*. **75**, 1490–1502.

Chen, C. C., Chen, X. P. and Meindl, J. R. (1998). 'How can cooperation be fostered? The cultural effects of individualism-collectivism'. *Academy of Management Review*, **23**, 285–304.

Clark, M. S. (1984). 'Record keeping in two types of relationships'. *Journal of Personality and Social Psychology*, **47**, 549–57.

Clark, M. S. and Mills, J. (1979). 'Interpersonal attraction in exchange and communal relationships'. *Journal of Personality and Social Psychology*, **37**, 12–24.

Cohen, S. G. and Bailey, D. E. (1997). 'What makes teams work: Group effectiveness research from the shop floor to the executive suite'. *Journal of Management*, **23**, 239–90.

Cooper, C. L., Dyck, B. and Frohlich, N. (1992). 'Improving the effectiveness of gainsharing: The role of fairness and participation'. *Administrative Science Quarterly*, **37**, 471–90.

Cotton, J. L. (1993). *Employee Involvement: Methods for Improving Performance and Work Attitudes*. Newbury Park, CA: Sage.

Crosby, F. (1976). 'A model of egoistic relative deprivation'. *Psychological Review*, **83**, 85–113.

Dawes, R. M. (1980). 'Social dilemmas'. *Annual Review of Psychology*, **31**, 169–93.

Dirks, K. T. (1999). 'The effects of interpersonal trust on work group performance'. *Journal of Applied Psychology*, **84**, 445–55.

Dirks, K. T. (2000). 'Trust in leadership and team performance: Evidence from NCAA basketball'. *Journal of Applied Psychology*, **85**, 1004–12.

Dirks, K. T. and Ferrin, D. L. (2002). 'Trust in leadership: Meta-analytic findings and implications for research and practice'. *Journal of Applied Psychology*, **87**, 611–28.

Drolet, A. L. and Morris, M. W. (2000). 'Rapport in conflict resolution: Accounting for how face-to-face contact fosters mutual cooperation in mixed-motive conflicts'. *Journal of Experimental Social Psychology*, **36**, 1, 26–50.

Earley, P.C. (1989). 'Social loafing and collectivism: A comparison of the United States and the People's Republic of China'. *Administrative Science Quarterly*, **34**, 565–81.

Festinger, L. (1954). 'A theory of social comparisons processes'. *Human Relations*, **7**, 117–40.

Fleishman, J. A. (1988). 'The effects of decision framing and others' behavior on cooperation in a social dilemma'. *Journal of Conflict Resolution*, **32**, 162–80.

Golembiewski, R. T. and McConkie, M. (1975). 'The centrality of interpersonal trust in group processes'. In Cooper, C. L. (Ed.), *Theories of Group Processes*. London: Wiley, (pp. 131–85).

Higgins, T. E. (1998). 'Promotion and prevention: Regulatory focus as a motivational principle'. In Zanna, M. P. (Ed.), *Advances in Experimental Social Psychology*. New York, NY: Academic Press, (pp. 1–46).

Ilgen, D. R. and Pulakos, E. (1999). *The Changing Nature of Performance: Implications for Staffing, Motivation, and Development*. San Francisco, CA: Jossey-Bass.

Johnson-George, C. and Swap, W. C. (1982). 'Measurement of specific interpersonal trust: Construction and validation of a scale to assess trust in a specific other'. *Journal of Personality and Social Psychology*, **43**, 1306–17.

Kahneman, D. Slovic, P. and Tversky, A. (1982). *Judgment under Uncertainty: Heuristics and Biases*. Cambridge: Cambridge University Press.

Kerr, N. (1983). 'Motivation losses in small groups: A social dilemma analysis'. *Journal of Personality and Social Psychology*, **45**, 819–28.

Kerr, N. and Bruun, S. E. (1983). 'Dispensability of member effort and group motivation losses: Free-rider effects'. *Journal of Personality and Social Psychology*, **44**, 78–94.

Kramer, R. M. (1999). 'Trust and distrust in organizations: Emerging perspectives, enduring questions'. *Annual Review of Psychology*, **50**, 569–98.

Kramer, R. M., Brewer, M. B. and Hanna, B. A. (1996). 'Collective trust and collective action: The decision to trust as a social decision'. In Kramer, R. M. and Tyler, T. R. (Ed.), *Trust in Organizations: Frontiers of Theory and Research*. Thousand Oaks, CA: Sage, (pp. 357–89).

Kramer, R. M., Hanna, B. A., Su, S. and Wei, J. (2001). 'Collective identity, collective trust, and social capital: Linking group identification and group cooperation'. In Turner, M. E. (Ed.), *Groups at Work: Theory and Research*. NJ: Lawrence Erlbaum, (pp. 173–96).

Kramer, R. M. and Tyler, T. R. (1996). *Trust in Organizations*. Thousand Oaks, CA: Sage.

Langfred, C. (2004). 'Too much of a good thing? Negative effects of high trust and individual autonomy in self-managing teams'. *Academy of Management Journal*, **47**, 385–99.

Lawler, E. E. III. (1999). 'Employee involvement makes a difference'. *Journal for Quality and Participation*, **22**, 5, 18–20.

Leung, K. and Bond, M. H. (1984). 'The impact of cultural collectivism on reward allocation'. *Journal of Personality and Social Psychology*, **47**, 4, 793–804.

Leung, K. and Iwawaki, S. (1988). 'Cultural collectivism and distributive behavior'. *Journal of Cross-Cultural Psychology*, **19**, 1, 35–49.

Lewicki, R. J. and Bunker, B. B. (1995). 'Trust in relationships: A model of development and decline'. In Bunker, B. B., Rubin, J. Z. and Associates (Ed.), *Conflict, Cooperation and Justice*. San Francisco: Jossey-Bass, (pp. 133–74).

Lewicki, R. J. and Bunker, B. B. (1996). 'Developing and maintaining trust in work relationships'. In Kramer, R. M. and Tyler, T. R. (Ed.), *Trust in Organizations: Frontiers of Theory and Research*. Thousand Oaks, CA: Sage, (pp. 114–39).

Lewis, J. D. and Weigert, A. (1985). 'Trust as a social reality'. *Social Forces*, **63**, 967–85.

Luce, R. D. and Raiffa, H. (1957). *Games and Decisions: Introduction and Critical Survey*. New York: Dover.

Mayer, R. C., Davis, J. H. and Schoorman, F. D. (1995). 'An integrative model of organizational trust'. *Academy of Management Review*, **20**, 709–34.

McAllister, D. J. (1995). 'Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations'. *Academy of Management Journal*, **38**, 24–59.

McAllister, D. J. (1997). 'The second face of trust: Reflections on the dark side of interpersonal trust in organizations'. In Lewicki, R. J., Bies, R. J. and Sheppard, B. H. (Ed.), *Research on Negotiation in Organizations*. Greenwich, Connecticut: JAI Press, (pp. 87–111).

McShane, S. L. and Von Glinow, M. A. (2000). *Organizational Behavior*. Boston: Irwin McGraw-Hill.

Messick, D. M. and Brewer, M. B. (1983). 'Solving social dilemmas: A review'. *Review of Personality and Social Psychology*, **4**, 10–43.

Messick, D. M., Wilke, H., Brewer, M. B., Kramer, R. M., Zemke, P. E. and Lui, L. (1983). 'Individual adaptations and structural changes as solutions to social dilemmas'. *Journal of Personality and Social Psychology*, **44**, 294–309.

Morris, M. W., Sim, D. L. H. and Girotto, V. (1998). 'Distinguishing sources of cooperation in the one-round prisoner's dilemma: Evidence for cooperative decisions based on the illusion of control'. *Journal of Experimental Social Psychology*, **34**, 494–512.

Orbell, J. and Dawes, R. (1981). 'Social dilemmas'. In Stephenson, G. and Davis, J. H. (Ed.), *Progress in Applied Social Psychology*. Chichester, England: Wiley, (pp. 37–66).

Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H. and Fetter, R. (1990). 'Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors'. *Leadership Quarterly*, **1**, 2, 107–142.

Pruitt, D. G. (1983). 'Experimental gaming and the goal/expectation hypothesis'. *Small Groups and Social Interaction*, **2**, 107–21.

Pruitt, D. G. and Kimmel, M. J. (1977). 'Twenty years of experimental gaming: Critique, synthesis, and suggestions for the future'. *Annual Review of Psychology*, **28**, 3–392.

Rapoport, A. (1988). 'Provision of step-level public goods: Effects of inequality in resources'. *Journal of Personality and Social Psychology*, **54**, 432–40.

Rapoport, A., Bornstein, G. and Erev, I. (1989). 'Intergroup competition for public goods: Effects of unequal resources and group size'. *Journal of Personality and Social Psychology*, **56**, 748–56.

Rempel, J. K., Holmes, J. G. and Zanna, M. D. (1985). 'Trust in close relationships'. *Journal of Personality and Social Psychology*, **49**, 95–112.

Rutte, C. G., Wilke, H. A. M. and Messick, D. M. (1987). 'Scarcity or abundance caused by people or the environments as determinants of behavior in resource dilemma'. *Journal of Experimental Social Psychology*, **23**, 208–16.

Schroeder, D. A., Jensen, T., Reed, A., Sullivan, D. and Schwab, M. (1983). 'The actions of others as determinants of behavior in social trap situations'. *Journal of Experimental Social Psychology*, **19**, 552–39.

Sniezek, J. A., May, D. R. and Sawyer, J. E. (1990). 'Social uncertainty and interdependence: A study of resource allocation decisions in groups'. *Organizational Behavior and Human Decision Processes*, **46**, 155–180.

Steiner, I. D. (1972). *Group Process and Productivity*. New York: Academic Press.

Tajfel, H., Billig, M. G., Bundy, R. P. and Flamen, T. C. (1971). 'Social categorization and intergroup behavior'. *European Journal of Social Psychology*, **11**, 439–43.

Weber, M. (1978). *Economy and Society*. Berkeley: University of California Press.

Whitener, E. M., Brodt, S. E., Korsgaard, M. A. and Werner, J. M. (1998). 'Managers as initiators of trust: An exchange relationship framework for understanding managerial trustworthy behavior'. *Academy of Management Review*, **23**, 513–30.

Williams, K. and Karau, S. (1991). 'Social loafing and social compensation: The effects of expectations of co-worker performance'. *Journal of Personality and Social Psychology*, **61**, 570–78.

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