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When Do People Find Cooperation Most Justified? The Effect of Trust and Self–Other Merging in Social Dilemmas

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On the basis of goal/expectation theory, it was predicted that just as in interpersonal relationships, cooperation in social dilemma groups would increase only if both trust was high and group members had a common goal of cooperation. Introducing new measures of both these two processes to the social dilemma arena, the goal of mutual cooperation was assessed by the process of self–other merging (the IOS scale), and trust by assessing the extent to which one trusted others and one believed one was perceived as trustworthy by the others. The results showed that when both self–other merging and trust was high, cooperation was indeed highest. Implications for the specific functions of trust and self–other merging in social dilemmas are discussed.

KEY WORDS: trust; self–other merging; social dilemmas; cooperation.

A *social dilemma* represents a social situation in which personal and collective interests are at odds (see for reviews Komorita and Parks, 1994). For example, within organizations, individuals may not go above and beyond the job description or may not invest enough energy and time in team projects for the sake of their own interest, but, if all organizational or group members act in such a self-interested manner, team projects may fail and the interest of the individual, group, or organization will not be served at all. As such, in these situations of interdependence, pursuing the personal interest may yield the individual decision maker the highest outcomes. However, if each individual attempts to maximize his or her

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self-interest, the collective outcome will be lower than if each individual attempts to further the collective interest (Dawes, 1980).

One type of dilemma we are confronted with frequently and which is the focus of the present research is the *public good dilemma*; as described in the above example. Public goods (e.g., outcomes or benefits from a common team project) can be defined as goods that are available to all. That is, no individual can be excluded from consuming it once it is provided (i.e., impossibility of exclusion; see Olson, 1965). An implication of the impossibility to exclude individuals from consumption is that the provision of public goods (e.g., the achievement of a common team project) is problematic. After all, if it is possible to consume the good even without contributing to its provision, individuals may reason that it is in their personal interest not to contribute (i.e., to free-ride). The risk then is that contributions will fall short, and the public good will not be provided (Dawes, 1980). How to reduce such free-riding?

In justice terms, people will cooperate more if they think they can justify this prosocial act. That is, decision makers will only increase contributions to the public good if this higher contribution is something that they can justify to themselves, or, in other words, that the risk of not being reciprocated and being exploited is relatively low. Therefore, it is important to examine which psychological factors may motivate decision makers to cooperate.

According to Pruitt and Kimmel's goal/expectation theory (Pruitt and Kimmel, 1977), two conditions have to be met to elicit cooperation and as such to reduce free-riding, that is, (a) one should have a goal of mutual cooperation, and (b) one should expect others to cooperate. In their words, Pruitt and Kimmel (1977) state "While usually necessary, the goal of achieving mutual cooperation, is insufficient to elicit cooperative behavior. It must be accompanied by an expectation that the other will cooperate." (p. 375) Although this goal/expectation theory was initially focused on the behavior of two people in interdependent situations, researchers in the social dilemma arena have argued that this theory should also be applicable to group situations ($n > 2$), like, social dilemmas (see e.g., Rutte and Wilke, 1992; Yamagishi, 1986).

However, little experimental evidence exists that both trust and the goal of achieving mutual cooperation are necessary to enhance or sustain cooperation in social dilemma situations. One of the few examples of such a group study examining these two factors is the study by Wilke and Braspenning (1989). These researchers examined the influence of expectations (i.e., operationalized by inducing cooperative or competitive expectations about other's behavior) and goals (i.e., operationalized by inducing a competitive vs. a cooperative goal) on cooperation in a social trap situation (Platt, 1973). The findings of this study revealed, as could be expected by the goal/expectation theory, that cooperation was highest when participants had a cooperative goal and a cooperative expectation about the others. Because evidence of this kind is very limited in the social dilemma literature,

more experimental research is required that examines how expectations and goals of mutual cooperation interact in predicting cooperation.

In the present study, expectations were operationalized by means of individual differences in trust. As Pruitt and Kimmel (1977, p. 375) argued, "the expectation of cooperation is sometimes called 'trust.' " In fact, within the social dilemma tradition, it is argued that the decision to defect or to cooperate is greatly determined by expectations about other's actions, and particularly in the context of public good dilemmas (which is the focus of the present study) trust is considered as an important determinant of cooperative behavior (see Parks, 1994; Parks and Hulbert, 1995). A renewed interest by organizational and psychological researchers (e.g., Jones and George, 1998; Kramer, 1999) in the study of trust has shown that understanding trust is important to promote cooperation, coordination, and even control, across a variety of social interactions (e.g., McAllister, 1995). Indeed, previous research has demonstrated that trust makes relationships of all kind (e.g., work, love, and friendship; Couch and Jones, 1997; Dirks, 1999) more effective and pleasant.

In public good dilemmas, trust is considered to be particularly important as it presents a psychological construct that may be beneficial in solving the conflict between one's own interest and the interest of the others (Dawes, 1980; Kramer, 1999). Following Mayer, Davis, and Schoorman (1995), trust can be defined as "the willingness of a party to be vulnerable to the actions of another party based on the expectations that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (p. 712). Most studies of trust have used definitions similar to this one. In general, this perspective suggests that when trust is high, people will have confidence in another's goodwill, and therefore engage in reciprocal cooperation (e.g., Granovetter, 1992; Ring and van de Ven, 1994). As such, people will experience less fear that others will exploit them, making it easier for them to justify their decisions to cooperate (Yamagishi and Sato, 1986). Therefore, trust may play a prominent role in establishing cooperation in social dilemmas.

Following all of this, research on social dilemmas has shown that the level of trust influences expectations about another's motives with respect to oneself (e.g., Brann and Foddy, 1987), and affects behavior in interdependence situations (e.g., Parks and Hulbert, 1995). Interestingly, these studies also showed that high trusters (who expect reciprocity) cooperated irrespective of whether others cooperated, suggesting that trust is not necessarily linked to self-interest solely, but also to a sense of moral commitment (Kramer and Goldman, 1995). From this perspective, it is assumed that those high in trust have positive expectations that their own interest will not be harmed by uncooperative behavior by the other and therefore will cooperate (regardless of what others do), whereas those low in trust do not share this belief and therefore will be less cooperative. However, does trust have to be accompanied by a goal of mutual cooperation as well to reveal the

highest levels of cooperation? Following goal/expectation theory, this should be the case.

How to operationalize such cooperative goal? The research by Wilke and Braspenning (1989), for example, manipulated a competitive goal by informing participants that the group member obtaining the highest outcomes would receive the bonus, whereas a cooperative goal was manipulated by telling participants that all group members would receive the bonus if the own group would perform better than an outgroup. Other social dilemma research used a manipulation of group identification to induce a cooperative goal among group members (e.g., De Cremer and van Dijk, 2002; De Cremer and Van Vugt, 1999; Kramer and Brewer, 1984; Wit and Kerr, 2002). For example, research by De Cremer and colleagues showed that if the ingroup compared its performances (i.e., contributions to a public good) to a relevant comparison group, a sense of group identification among the group members increased and contributions were consequently enhanced. These authors explained this effect by arguing that an enhanced sense of group identification transforms people's interest from the personal level to the collective level (i.e., goal-transformation hypothesis), and, also important for the present research, this effect was not related to increasing positive expectations or trust (see De Cremer, van Knippenberg, van Dijk, and van Leeuwen, 2002). Of course, many of these manipulations also activate psychological processes that are not related to or that go beyond the psychological mechanism of installing a goal of mutual cooperation (e.g., these manipulations may also increase perceptions of efficacy etc., see De Cremer and Van Vugt, 1998; Kerr, 1992). Therefore, we need a measure that is focused primarily on how people incorporate the goals of the group into one's own personal goals, as this is the primary mechanism of achieving mutual cooperation (i.e., "the goals of the others are my goals"). One specific measure of this kind can be derived from the literature on interpersonal relationships, and more specifically, self-expansion theory (see Aron and McLaughin-Volpe, 2001, for a recent review).

In interdependent relationships, our decisions can significantly be influenced by others, in such a way that others are treated as self, a process which is referred to as self–other merging, or as Aron and Aron (1986, p. 19) suggest in their self-expansion theory "including others in the self." This process of experiencing close others as part of the self has been illustrated by an impressive line of studies (see Aron and McLaughin-Volpe, 2001, for a recent review). Using an Inclusion of Other in the Self Scale (IOS scale, see Fig. 1 for an example), Aron, Aron, and Smollan (1992), for example, demonstrated that the way people experience closeness to others, can be successfully assessed by means of a series of overlapping circles. The more people experience inclusion of other in the self, the more they are likely to consider their relationship with this other as overlapping. Following this line of thinking, Aron, Aron, Tudor, and Nelson (1991) demonstrated that if interaction partner(s) are considered to be part

Fig. 1. The Self–Other Merging scale contains seven pairs of circles. One circle represents yourself, and the other circle represents the other group members. Indicate, by circling one of the numbers (1–6) which pair of circles reflects best how you feel toward the others at this moment.

of one's self, decisions about allocations are communal, that is, both own and other's resources will be considered as interchangeable, consequently leading to an increase in cooperation. Thus, the process of self–other merging can be considered as a very useful way to activate the process of installing a goal of mutual cooperation.

To summarize, the purpose of the present study is to examine the hypothesis that both a goal of mutual cooperation and high levels of trust are needed to reveal the highest levels of cooperation in public good dilemmas. Although several decision-making researchers have suggested this prediction, still little evidence exists examining this interaction in a direct way. Therefore, additional evidence is needed to illustrate this effect within group situations such as social dilemma situations. Furthermore, the present study will assess the extent to which group members possess a goal of mutual cooperation by means of the IOS scale. To date, this type of assessment has not been used yet in social dilemma settings—at least, to our knowledge—and as such represents a new measurement tool. Also, because the IOS scale is derived from the literature on interpersonal relationships, demonstrating its usefulness at the level of the group would be an important extension of this scale (see also Smith, Coats, and Walling, 1999).

Finally, in this study, it is decided to measure trust as completely as possible by assessing the extent to which participants trusted the others, but also their own perceptions of how much others trusted them. This type of assessment was motivated by a concern that has been addressed in trust-research that people also need to be convinced that others will perceive them as trustworthy as well, or as Gambetta (1988) suggests, "It is necessary not only to trust others before acting cooperatively, but also to believe that one is trusted by others" (p. 216). Indeed, Kramer, Brewer, and Hanna (1996) explicitly mention that social dilemma research has failed to address this important issue of direction of trust (i.e., how much do you trust the others and how much do the others trust you). Rather, they solely focused on individual decision makers *a priori* beliefs that in collective settings, others will reciprocate cooperation. However, using Schelling's notion of "spiral of reciprocal expectations," (Schelling, 1960) it is clear that, according to Kramer et al., we also need to be certain that the others have similar positive expectations about us. Therefore, both directions of trust were assessed when classifying participants as high vs. low in trust.

Before moving to the studies, the hypotheses will be briefly summarized. First, it is predicted that contribution levels will be higher when trust is high rather than low (*Hypothesis 1*). Second, if self–other merging is strong, it is expected that contribution levels will be higher than when self–other merging is weak (*Hypothesis 2*). Finally, an interaction is expected in such a way that both self–other merging and high trust are required to obtain the highest levels of contributions (*Hypothesis 3*).

METHOD

Participants. Seventy-six undergraduates participated voluntarily in the present study and were each paid 15 Dutch Guilders (DFL, 6, 5 euros). The independent variables were Trust (high vs. low) and Self–other merging (high vs. low).

PROCEDURE

Participants arrived in groups of four at the laboratory, and each participant was placed in a separate experimental cubicle, containing a table and a chair. After participating in an unrelated study, participants received a booklet explaining the collective decision-making task they would participate in. The total study lasted about 35 min.

Introduction to the public good dilemma. Participants were explained that they would participate in a four-person group to examine decision making in groups. They were told that each group member received an endowment size of 300 DFL (140 euros), and were free to contribute any amount between 0 and 300 DFL. Moreover, it was made clear that the group as a whole should have to contribute a minimum of 600 DFL to obtain a group bonus of 1200 DFL for the group, which would then be distributed among all group members regardless of the amount they contributed. In this situation, the amount participants decided not to contribute, would accrue to themselves and if the group would be successful they would receive part of the group bonus as well. However, if the group failed then the contributions one made would be lost, and only the amount one decided not to contribute would accrue to oneself. This situation is thus characterized by *impossibility of exclusion* in a way that once the bonus is provided anyone can enjoy it, regardless whether he or she contributed much or little. This property creates a temptation for participants to *free-ride*, that is to profit from the contributions of others without making a contribution themselves.

Measurement trust. After explaining the group task to familiarize participants with the group setting at hand, individual differences in trust was assessed. As argued in the introduction, both directions of trust were assessed: the extent to which participants trusted the others, but also their own perceptions of how much others' trusted them (see Gambetta, 1988). More specifically, participants were asked to what extent they "trusted the others to contribute sufficiently," "did not trust the others to contribute sufficiently," "thought the others trusted them to contribute sufficiently," and "thought the others did not trust them to contribute sufficiently." These items were combined to form one average trust score (Cronbach's $\alpha = 0.91$).

Measurement self–other merging. Thereafter, the degree of merging between self and others in the group was measured. For this purpose, we used the IOS scale

of Aron et al. (1992). This scale consists of a series of diagrams of overlapping circles (see Fig. 1) from which participants select one diagram that best reflects their relationship. This scale has high levels of reliability and validity and is a strong predictor over time (see Aron and McLaughin-Volpe, 2001). In the present study, this scale was used to assess the closeness between self and the others in the group. For data analyses and presentation, we then converted the diagrams to a Likert scale that ranged from 1 (being apart) to 6 (overlapping).

Contribution decision. Subsequently, participants were asked how much of their 300 DFL endowment they were willing to contribute to the group to provide the group bonus. After each participant made their decision they were debriefed about the purpose of the experiment. Finally, they were paid and thanked for their cooperation.

RESULTS

Means, standard deviations, and intercorrelations for the study variables are displayed in Table 1. To test the hypotheses, a hierarchical regression analysis was conducted in which contributions were predicted by main effect terms (trust and merging self–other) at Step 1 and the interaction term at Step 2 (see Table 1). Following Aiken and West (1991), merging self–other and trust were centered (i.e., by subtracting the mean from each score) and the interaction term was based on these centered scores. Table 2 shows the regression results: Contributions were positively related to trust (Hypothesis 1) and marginally significant to merging self–other (Hypothesis 2). Furthermore, the interaction between Trust and Self–Other merging (Hypothesis 3) was significant. Simple slopes analysis was conducted to further analyze this interaction (Aiken and West, 1991). When trust was high (subtracting one SD), merging self–other was significantly related to cooperation, $\beta = 0.39$, $p < 0.005$, and this was not the case when trust was low (adding one SD), $\beta = -0.07$, $p < 0.63$. When self–other merging was high, trust was significantly related to cooperation, $\beta = 0.61$, $p < 0.005$, but not when self–other merging was low, $\beta = 0.13$, $p < 0.40$. Results thus show that the combination of high self–other merging and high trust has the strongest positive impact on cooperation.

Table 1. Means, Standard Deviations, and Intercorrelations of Cooperation, Trust, and Self–Other Merging

	M	SD	Cooperation	Trust	Merging
Cooperation	152.60	44.30			
Trust	5.05	1.13	0.45**		
Merging	4.18	1.19	0.24*	0.11	

Note. $n = 79$.
* $p < 0.05$; ** $p < 0.01$.

Table 2. Results of Hierarchical Regression Analysis of Cooperation on Trust and Self–Other Merging

	β	R^2	R^2_{adj}	R^2_{change}	df
Dependent Variable—Cooperation					
Step 1		0.24	0.22	0.24	2.74
Trust	0.43***				
Merging	0.19*				
Step 2		0.29	0.26	0.05	3.73
Trust × Merging	0.23**				

Note. Total $F(3, 73) = 9.68$, $p < 0.001$.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.001$.

DISCUSSION

Taken together, the findings of this study show that contributions to a public good will be highest when decision makers trust others/feel trusted by those others and experience the group as part of the self. Thus, the present findings demonstrate that both trust and self–other merging are necessary to increase cooperation levels, a result that is consistent with Pruitt and Kimmel's goal/expectation theory (Pruitt and Kimmel, 1977). Although this theory was initially developed to understand cooperation in dyads, its assumptions, however, do seem to apply to group settings as well (see Rutte and Wilke, 1992, for a similar argument).

In social dilemmas, group members have conflicting interests and are able to influence each other's outcomes, as such allowing both strategies of defection and cooperation to emerge (Komorita and Parks, 1994). Because of these specific properties, the issue of trust plays a prominent role in social dilemmas as it can be used as a psychological assurance that others will cooperate. Moreover, in the present research, we also argued that one should not only assess whether decision makers trust others, but also whether one thinks that he or she is perceived as trustworthy by the others (Gambetta, 1988; Kramer et al., 1996; Schelling, 1960). Incorporating both directions of trust into one measure indeed predicted cooperation significantly. Therefore, it is our hope that future social dilemma research will focus more explicitly on the importance of both directions of trust. However, trust on its own is not sufficient to elicit the highest levels of cooperation. To achieve this, a goal of mutual cooperation is necessary (Pruitt and Kimmel, 1977). In line with this latter assumption, the present findings do indeed show that the extent to which people include the others or collective into the self (i.e., assigning equal weight to own and other's resources) is needed to raise contributions even further.

This self–other merging process is particularly interesting to the social dilemma field because this process refers directly to people's willingness to perceive the self and others as interchangeable in terms of interests and resources (e.g., Aron et al., 1991). As such, the use of the IOS scale can be regarded as a useful tool in social dilemmas settings to examine whether personal and collective goals are experienced as interchangeable and whether this exerts any influence on

the decisions people make (the present study is the first—to our knowledge—to do this). Moreover, because this scale focuses on the incorporation of the group or collective into the self, it shares conceptual similarities with the theoretical underpinnings of very recent research on the group identification effect in social dilemmas (De Cremer and van Dijk, 2002; De Cremer and Van Vugt, 1999). These studies demonstrated that if people identify strongly with the group or collective, the interest of the group becomes interchangeable with the interest of the individual decision-maker, consequently enhancing cooperation as under these circumstances promoting group interest is regarded as similar to promoting personal welfare. Or, as Brewer (1991, p. 476) argued "when the definition of self changes the meaning of self-interest and self-serving motivations also changes accordingly."

The fact that the IOS scale is predictive for behavior in collective settings is also an important contribution to the interpersonal literature on self-expansion. Indeed, to date, the vast amount of research using this scale only employed it in dyadic relationships, but not in the context of small groups. In fact, Smith, Coats, and Walling (1999) argue that "close relationships and group membership both involve some sort of merging of self and other" and that "this process may deeply influence cognition, affect and behavior in relationships and group contexts" (p. 881). In a similar vein, Aron and McLaughin-Volpe (2001) suggest that "the self-expansion model, and particularly the idea of including the other in the self, represents a useful conceptual framework that, in addition to its potential and previous primary focus on understanding interpersonal relationships, yields a number of important insights regarding the self and [inter]group context" (p. 105). As such, it seems time now to examine the predictive value of the IOS scale on a variety of group-related phenomena. This study is among the first to show such a relationship with a group-oriented variable, that is, cooperation.

Before closing, some limitations and strengths need to be discussed. A limitation is that the trust scale was used just before the social dilemma task. Although this may have influenced participants' decisions, previous research on trust scales has demonstrated that even when this social disposition is assessed well in advance of behavioral measures and tasks (e.g., 4–7 weeks), it still affects behavior in the predicted ways. For example, measuring trust weeks in advance influenced cooperative behavior in social dilemmas (e.g., Brann and Foddy, 1987). However, because there is always a possibility of earlier measures sensitizing participants to later measures, it would be interesting to replicate the present study by measuring the trust-scale a substantial amount of time before the actual task and to include a number of filler items. Further, both trust and self–other merging independent were assessed by using a continuous measure rather than to manipulate them. Future research may want to manipulate trust and self–other merging, a method allowing one to make strong causal inferences.

An important strength was the use of an experimental decision-making paradigm to facilitate the measurement of the processes, self–other merging and trust on cooperation. That is, in using a laboratory paradigm simulating the

social dilemma structure, we were able to obtain *objective* measures of cooperation (instead of subjective measures). This allows us to draw strong conclusions regarding the corresponding effects of trust and self–other merging on *actual behavior*. Another strength was that our participants were motivated to do well, because good performance would reveal more favorable personal outcomes. Because this motivational element is characteristic for many small groups in a variety of contexts ranging from, for example, individual- and group-based reward systems in organizations to sport performances in teams (e.g., NBA basketball, soccer, Dirks, 2000), the insights of the present study can as such be applied to small groups of this type. To conclude, the primary contribution of this research is to demonstrate that decision makers will only enhance contributions to the public good when they find this increase justifiable. Two processes deemed necessary to promote this justification process are trust and self–other merging.

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