

# Intergroup and Intragroup Aspects of Leadership in Social Dilemmas: A Relational Model of Cooperation

David De Cremer

*Maastricht University, Maastricht, The Netherlands*

and

Mark Van Vugt

*University of Southampton, Highfield, Southampton, United Kingdom*

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Two experiments investigated how leadership shapes individual contributions in small groups facing public goods dilemmas. We predicted that the influence of leaders would be determined by their ability to fulfill both instrumental needs (solve the free-rider problem) and relational needs (contribute to the identity) of group members. The relative importance of these two needs was expected to vary with the salience of group membership (social vs personal identity). This hypothesis was supported in two experiments. Experiment 1 revealed that leaders showing group commitment and fairness toward members were more effective at raising contributions when social identity was salient. Furthermore, Experiment 2 showed that highly committed leaders were more influential when social identity was salient, whereas leaders with intrinsic leadership skills were more influential when personal identity was salient. This suggests that the effectiveness of leader solutions to social dilemmas depends upon the fit between leader characteristics and member expectations. © 2001 Elsevier Science (USA)

Many problems in contemporary society involve a conflict between the self-interest of individuals and the broader interests of the collective. For example, people may be quite reluctant to donate money to maintain a community center or volunteer to organize an event at work because once these services are provided, everyone can benefit, regardless of their contributions. In social psychology, this type of problem is known as a social dilemma, or more specifically, a *public goods dilemma* (Dawes, 1980; Messick & Brewer, 1983; Van Vugt, Snyder, Tyler, & Biel, 2000).

In theory, public goods can be created through voluntary contributions by individuals. Yet the possibility of free riding may force groups to change the way they are orga-

nized so as to guarantee the long-term existence of these goods. A common organizational solution to the free-rider problem is to install a leader to manage the good (e.g., Messick et al., 1983; Samuelson, 1991; Van Vugt & De Cremer, 1999; Yamagishi, 1986). For various reasons, which we identify later, it is important to explore what happens in groups once a leader has been installed. For example, which leaders are successful in managing a public good, how much power should they have, and what leadership style should they adopt?

We believe that the answers to these questions will depend on the fit between the leader's attributes and the needs and expectations of group members. Based on recent group and leadership research (Hogg, Hains, & Mason, 1998; Tajfel & Turner, 1986; Tyler & Lind, 1992), we assume that leaders in social dilemmas are more effective to the extent that they can fulfill both instrumental needs (solve the free-rider problem) and relational needs (shape group identity and belongingness). However, the relative importance of these motives will be determined by members' identification with their group.

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Address correspondence and reprint requests to David De Cremer, Department of Experimental Psychology, P.O. Box 616, 6200 MD Maastricht, The Netherlands. Fax: + 31 43 388 4196. E-mail: [d.decremer@psychology.unimaas.nl](mailto:d.decremer@psychology.unimaas.nl).

### *Leadership in Social Dilemmas*

Research on leader solutions to social dilemmas has focused on the conditions under which group members are willing to give up their freedom to a leader who makes decisions on behalf of the group (see Messick, 1984; Wilke, 1991). This line of research shows that a group is more likely to tolerate a leader with autocratic power if the group has been repeatedly unsuccessful in managing the good by itself (Messick et al., 1983; Rutte & Wilke, 1984) or there have been inequalities in group members' outcomes (De Cremer, 2000; Samuelson & Messick, 1986).

Relatively few studies have examined what happens in groups once a leader has been installed (for an exception, see De Cremer, in press; Van Vugt & De Cremer, 1999; Wit & Wilke, 1988). Do group members actually start to cooperate with leaders in providing goods? This is an important area of investigation for both practical and theoretical reasons. Although most public goods in real life are hierarchically organized, leaders and authorities are usually not given complete control over group members' contributions. Hence, leaders cannot totally rely on coercion to solve public good conflicts. Instead, they need to be tactful and persuasive in order to raise and sustain high levels of cooperation (Tyler & DeGoeij, 1995).

A more fundamental reason for studying cooperation with leaders is that the determinants of such behavior may be quite different from cooperation in unstructured, leaderless social dilemmas, where cooperation is primarily shaped by individual factors, such as personal rewards, trust, efficacy, and so forth (Van Lange, Liebrand, Messick, & Wilke, 1992). Whether group members engage in cooperation with leaders, however, is shaped primarily by impressions about who leads and what leadership style they adopt. Our belief is that in order to be effective, leaders must not only be capable of solving the free-rider problem, thus providing positive individual outcomes, but they must also fulfill the relational needs of group members. Furthermore, which of these leadership functions is more important depends on the extent to which individuals identify with their group.

#### *Motives for Cooperation with Leaders: Instrumental and Relational Needs*

Two basic perspectives on the emergence of cooperation with leaders in public goods can be identified, instrumental and relational perspectives (Tyler & Dawes, 1993; Van Vugt & De Cremer, 1999). According to an *instrumental* perspective, group members cooperate with leaders primarily because it is in their self-interest to do so. For example, if group members expect to be punished or excluded from their group if they do not contribute, then they will be more tempted to contribute. They will also cooperate if they expect leaders to be successful in motivating others to

contribute, thus solving the free-rider problem (cf. Yamagishi, 1986).

This instrumental perspective, however, tells only part of the story. In addition to purely instrumental concerns, people may also cooperate with leaders because leaders foster positive affective ties among group members, thus making people feel good about their group as well as themselves. This *relational* perspective suggests that the effectiveness of leaders is also shaped by their ability to shape the relational needs of group members (cf. Baumeister & Leary, 1995). If leaders are capable of strengthening people's affective ties with their group, then that may influence the willingness of members to forego their self-interest and cooperate.

Consistent with a social identity model of leadership (Hogg, 2001), we suspect that these relational concerns are not equally important to each group member. Only when members identify strongly with their group will they be sensitive to relational information from leaders. When members perceive themselves more as unique individuals, however, they will be more concerned about the leader's potential success in solving the free-rider problem, which guarantees positive material rewards.

#### *Intergroup and Intragroup Evaluations of Leadership*

Relational information about leaders can be derived from both intergroup and intragroup aspects of leadership behavior. Particularly in *intergroup* settings, leaders must show that they are good representatives of their group, and to achieve this, they need to be prototypical (Hogg, 2001). Furthermore, they must demonstrate strong group commitment—a desire to strengthen the group's identity and performance vis-à-vis other groups (Ellemers, de Gilder, & Van den Heuvel, 1998). Impressions about their commitment stem mainly from the extent to which leaders themselves seem to identify with the group (e.g., high leader-member similarity, liking for the group). Showing commitment, however, is not the same as possessing skills needed for group success. For example, a highly committed team manager may not necessarily be good at monitoring and coordinating team members' efforts.

Whether group commitment is an important quality of leadership depends on members' expectations about their group. If members identify weakly with their group and perceive themselves as individuals rather than as group members, they will focus primarily on the material outcomes that leaders can provide. Hence, they will evaluate leaders mostly in terms of whether they possess the necessary skills to solve the free-rider problem rather than in terms of their group commitment. In contrast, when members identify strongly with their group, they will be less concerned about the leader's role in providing material outcomes because there will be sufficient trust in other group members' voluntary efforts (Kramer & Goldman, 1995). Attention will shift away from instrumental concerns

toward concerns about the leader's role in fostering a positive social identity. Because they have a special desire to belong to their group, committed leaders better fulfill the need for a positive identity—they are expected to protect the in-group identity better (Bornstein, 1992). Hence, they should be particularly influential when members' identity is derived from their group membership.

A second source of relational information involves judgments about the fairness of a leader's treatment of group members. People may be concerned about the fairness of the leader's decision-making procedures (e.g., "Does he or she keep a promise? Does he or she allow input in the decision-making?"), regardless of whether these procedures affect material outcomes (Tyler & DeGoey, 1995). This is because the fairness of procedures enacted by the leader also communicates information about the quality of life in the group. A fair procedure signifies to people that the leader respects them and values their group membership (cf. Lind & Tyler, 1988; Tyler & Lind, 1992; Tyler & Smith, 1999). A leader's fairness thus influences the way members think about their group, as well as themselves, which affects the willingness of members to cooperate.

The importance of procedural information, however, depends on group members' sense of identity. Based on the group-value model (Tyler & Lind, 1992), we expect an unfair procedure (e.g., breaking a promise) to have a stronger impact on people who identify strongly with their group. If people perceive themselves primarily as individuals rather than group members, then they will be less concerned about the treatment they receive from group leaders, as long as it does not affect their material outcomes. Their primary motive is instrumental rather than relational, so they are less influenced by leadership actions that affect intragroup relationships. In contrast, because they care about group membership, people with salient social identities expect leaders to treat everyone in the group with respect and dignity, so that they can take pride in their group. If leaders break promises, then that could be perceived as a threat to group identity and members' self-esteem. This, in turn, should make people less eager to cooperate with the leader in solving the public good.

### *Summary of Hypotheses*

This analysis led us to test the following research hypotheses about the role of personal and social identity in group members' cooperation with leaders in public good dilemmas.

First, extending the results from research on social identity effects in leaderless dilemmas (De Cremer & Van Vugt, 1999; Kramer & Brewer, 1984), we predicted that when a social identity is salient among group members, they would cooperate more with leaders than when a personal identity is salient (*Hypothesis 1*).

Second, we expected differences in contributions as a

result of the leader's commitment to the group. We predicted that a high (vs low) committed leader would be more influential in raising members' contributions and that this effect would be more pronounced in the social (vs personal) identity condition (*Hypothesis 2*).

Third, we predicted that a procedurally fair leader would be more successful in raising contributions than a procedurally unfair leader and that this effect would be more pronounced in the social (vs personal) identity condition (*Hypothesis 3*).

Finally, we wanted to explore how the intragroup and intergroup components of leadership behavior might influence group members' self-evaluations. If identity concerns indeed affect evaluations of and cooperation with leaders, then there should also be differences in members' self-esteem as a result of leadership style. Following social identity models of leadership (Hogg, 2001; Tyler & Lind, 1992), self-esteem should be higher when group members are supervised by committed and fair leaders. But a relational perspective suggests that this effect should be stronger for members who derive self-esteem from their group membership.

## EXPERIMENT 1

We tested these hypotheses in an experimental task with the properties of a linear public goods dilemma (Komorita & Parks, 1994). Linear public goods are continuous in the sense that their size depends on the total amount contributed. That amount is then split equally among group members, regardless of how much each person contributed. Thus, although there is a desire to increase collective outcomes, there is also a temptation to free-ride on others' contributions. In this dilemma, we reinforced identities by either stressing an intergroup (social identity) or an interpersonal (personal identity) comparison. Each group was monitored by a leader whose commitment to the group seemed either high or low. Finally, that leader either kept (fair) or withdrew (unfair) a promise made to group members. Our primary dependent variable was the amount of money people contributed to their group.

### Method

#### *Participants and Design*

Ninety-four British undergraduate students (56 women and 38 men), between ages 18 and 21, participated in this experiment to fulfill course requirements. Participants were randomly assigned to one of eight experimental conditions, using a 2 (Identity: personal vs social)  $\times$  2 (Leader commitment: high vs low)  $\times$  2 (Leader fairness: fair vs unfair)  $\times$  2 (Contributions: Block 1 vs Block 2) factorial design. The last factor was a within-participant factor,

whereas the others were between-participants factors. Cell sizes varied from 10 to 13 participants.

### Procedure

Upon arrival in the laboratory, each participant was seated in a separate cubicle that contained a computer, a table, and a chair. All instructions were given via the computer. Each participant was assigned an identification number. Although the participants (six of them) at each session believed they were assigned different numbers, they all were given the number 29.

*Introduction to public goods dilemma.* The task was introduced as an investment task in which people could earn money for themselves and for their group. The dilemma structure of the task was explained using an example (donating to a group dinner).

At the start of each group session (eight in total), each participant received an endowment of 300 pence (approximately \$5). He or she was then free to contribute any amount from 0 to 300 pence. We explained that the total amount contributed by the group would be multiplied by 2 and then divided equally among the group members. If each member of the group contributed a large amount, then everyone would receive more at the end, yet everyone would get an equal payoff, regardless of their contribution.

*Manipulation of identity.* Identity was manipulated by stressing either an intergroup or interpersonal comparison among students (Kramer & Brewer, 1984; Van Vugt & De Cremer, 1999). All participants were told that the experiment was being conducted at several Universities in southern England. In the *social identity* condition, participants were then told that we would compare the contribution decisions of students at Southampton University with those of students at other universities. We noted that all six group members were Southampton University students. In the *personal identity* condition, participants were told that we would compare the individual contribution decisions of all the students participating in their experimental session. We said nothing here about other universities. Participants were then asked several questions regarding the strength of their group identification.

*Introduction of leader.* After the group identification manipulation, participants were told that groups are sometimes supervised by leaders who coordinate individual contributions. Therefore, someone would be appointed to lead their groups as well. The computer would randomly select one group member to act as the leader. We told participants that the leader would not participate in the following contribution sessions, but rather monitor group contributions. The leader would also have some power to enforce contributions from group members by punishing the person who contributed the least in each contribution session. Group members were then reminded again of their own identifica-

tion number (all 29) and told that the computer had chosen number 33 to be the group leader.

*Manipulation of leader commitment.* Next, we provided some information to group members about their leader. Participants believed that this information was based on their answers to questions we asked earlier regarding group membership. In half of the conditions, participants were told that the assigned leader was someone who was highly committed to the group (*high committed leader*). A 7-point scale appeared on the computer screen with a mark showing that the leader had an average commitment score of 6. In the other conditions, participants were told that the leader was someone who was only weakly committed to the group (*low committed leader*). Here, the mark showed an average commitment score of just 2.

The leader, we explained, would receive a summary of the individual contributions made in each session. The leader could thus identify which member contributed the least. That person would receive a fine of 200 pence from the leader. If several people contributed the same amount, and that was the least amount, then the fine would be divided equally among them.<sup>1</sup>

Finally, participants were told that after the final contribution session ended, they would receive an overview of all their earnings and penalties. We also explained that if someone did not agree with a penalty, the leader would give him or her an opportunity to discuss this matter. The leader would contact each group member by e-mail about this.

*Sessions 1–4.* The first four contribution sessions then began, and each time, participants were asked how much of their endowment (between 0 and 300 pence) they wanted to contribute. At the end of each session, the leader contacted all members via e-mail and identified the person who (supposedly) contributed the least for that session. This person was fined 200 pence.

*Manipulation of leader fairness.* After the fourth contribution session, the fairness manipulation was carried out. In the *fair* condition, the leader told group members: “The experimenter has informed me that at the end of all the sessions, people would have an opportunity to discuss with me any penalties they received. This is indeed what I plan to do, and so I will contact each of you after you have been given an overview of your total earnings and penalties.” But, in the *unfair* condition, the leader said: “The experimenter has informed me that at the end of all the sessions, people would have an opportunity to discuss with me any penalties they have received. However, I have decided against this. Thus, I will not contact you after you have been given an overview of your total earnings and penalties.”

<sup>1</sup> This penalty may seem high, but the expected value of the penalty was only 33 pence because people had a 1 in 6 chance of receiving it. Thus, they could risk contributing little in the hope that someone else would contribute even less.

Sessions 5–8. A second block of four sessions was then carried out. Again, participants could contribute any amount between 0 and 300 pence per session. After the fifth session, all participants themselves were punished in order to avoid suspicion about the feedback.

*Dependent measures.* All questions were answered on 7-point scales (1 = *not at all* to 7 = *very much*). First, to measure group identification, participants were asked to indicate how much they identified with the group, felt they fit into the group, and were committed to the group (taken from Hains, Hogg, & Duck, 1997). Each person's responses were averaged into one group identification score (Cronbach's  $\alpha = .84$ ). Second, to see whether participants thought their leader was fair, we asked them whether the leader kept his promise to allow posttask discussion. Finally, we administered a measure of self-esteem, adapted from Rosenberg's (1979) scale. Participants were asked, at this moment and with this leader, whether they felt "sure of themselves," "like a person of worth," and "useless." Responses on these three questions were averaged into a single self-esteem score (Cronbach's  $\alpha = .75$ ,  $M = 4.48$ ,  $SD = 1.17$ ).

*Debriefing.* After participants answered these questions, the experiment was interrupted. The experimenter took people away from their cubicles and led them to another room where the experiment was explained in detail. Participants were then informed about the nature of and justification for the various manipulations, and they were also asked several questions about the task. There were few suspicions among participants about the information they were given during the experiment. Finally, participants were thanked for their help and dismissed.

## Results

### Manipulation Checks

A 2 (Identity)  $\times$  2 (Leader fairness)  $\times$  2 (Leader commitment) ANOVA on the average group identification score revealed the expected main effect for identity [ $F(1, 86) = 9.43$ ,  $p < .005$ ]. Participants in the social identity condition identified more strongly with their group than did participants in the personal identity condition ( $M_s = 4.29$  vs  $3.63$ ,  $SD_s = 1.03$  and  $1.06$ , respectively). The average score in the latter condition was significantly below the midpoint (4.00) of the rating scales [ $t(48) = -2.46$ ,  $p < .05$ ]. There were no other significant effects for this measure.

A 2 (Identity)  $\times$  2 (Leader commitment)  $\times$  2 (Leader fairness) ANOVA on answers to the question about whether the leader kept his/her promise revealed the expected effect for fairness [ $F(1, 86) = 201.82$ ,  $p < .001$ ]. In the fair condition ( $M = 5.46$ ,  $SD = 1.61$ ), there was more agreement that the promise was kept than in the unfair condition ( $M = 1.43$ ,  $SD = 1.02$ ). There were no other significant effects for this measure.

TABLE 1  
Main and Interaction Effects (Experiment 1)

	<i>F</i> value	<i>p</i> value
Identity	7.15	.009
Leader fairness	.63	.428
Leader commitment	1.62	.206
Block	2.29	.026
Identity $\times$ Leader fairness	2.04	.157
Identity $\times$ Leader commitment	4.56	.036
Identity $\times$ Block	1.13	.344
Leader commitment $\times$ Block	.36	.927
Leader fairness $\times$ Block	8.19	.002
Leader fairness $\times$ Leader commitment	.01	.934
Identity $\times$ Leader fairness $\times$ Leader commitment	.60	.440
Identity $\times$ Leader fairness $\times$ Block	6.38	.025
Identity $\times$ Leader commitment $\times$ Block	.44	.877
Leader commitment $\times$ Leader fairness $\times$ Block	.73	.650
Identity $\times$ Leader fairness $\times$ Leader commitment $\times$ Block	.60	.755

*Note.* The *df* for all effects is (1, 86).

Finally, participants were also asked to report the commitment score for their group leader. All participants recalled this information correctly.

These results indicate that all three of our manipulations (identification, leader commitment, and fairness) were successful.

### Contribution Decisions

The first four contribution sessions (before the fairness manipulation) were grouped into one block and then compared with a second block containing the other four sessions (after the fairness manipulation).<sup>2</sup> Participants' contributions were then analyzed in a 2 (Identity)  $\times$  2 (Leader commitment)  $\times$  2 (Leader fairness)  $\times$  2 (Block) ANOVA with repeated measures on the fourth factor (see Table 1).

First, a significant main effect emerged for block [ $F(1, 86) = 2.29$ ,  $p < .05$ ], indicating that contributions increased from the first to the second block ( $M_s = 177.48$  vs  $186.73$ ,  $SD_s = 65.91$  and  $64.56$ , respectively).

Second, and consistent with *Hypothesis 1*, a significant main effect was found for identity [ $F(1, 86) = 7.15$ ,  $p < .01$ ], indicating that people contributed more when their social rather than personal identities were salient ( $M_s = 190.83$  vs  $156.89$ ,  $SD_s = 59.01$  and  $60.40$ , respectively).

Third, there was no significant main effect for leader commitment [ $F(1, 86) = 1.62$ ,  $p < .21$ ], but the means suggested that members contributed more when their lead-

<sup>2</sup> A preliminary analysis that included the eight contribution sessions as an additional within-subject variable revealed the same results as when the sessions were grouped into two blocks of four. There were no noteworthy trends within those blocks. Therefore, we report only the results of the block analysis here.

TABLE 2  
Contributions as a Result of Block, Leader Fairness,  
and Identity

Identity	Leader fairness	Block 1	Block 2
Social	Fair leader	186.78 <sup>c</sup> (73.61)	225.86 <sup>a</sup> (64.92)
	Unfair leader	185.62 <sup>c</sup> (64.04)	163.65 <sup>b</sup> (60.61)
	<i>M</i>	186.20 (68.82)	194.75 (62.76)
Personal	Fair leader	146.38 <sup>b</sup> (50.46)	159.53 <sup>b</sup> (70.70)
	Unfair leader	156.26 <sup>b</sup> (64.04)	165.77 <sup>b</sup> (69.24)
	<i>M</i>	151.32 (57.25)	162.65 (69.97)
	Overall <i>M</i>	168.76 (63.00)	178.70 (66.35)

Note. Means with a different superscript differ significantly at  $p < .05$ ; standard deviations are given in parentheses.

er's commitment was high rather than low ( $M_s = 181.12$  vs  $165.67$ ,  $SD_s = 73.63$  and  $60.70$ , respectively). Our second hypothesis concerned the combined effect of member identities and leader commitment on contributions. The main effect of member identity was indeed qualified by a significant interaction with leader commitment [ $F(1, 86) = 4.56$ ,  $p < .05$ ]. As we predicted, contributions were higher under a leader whose commitment was high rather than low when social identity was salient [ $M_s = 212.58$  vs  $168.10$ ,  $SD_s = 60.74$  and  $48.70$ , respectively;  $F(1, 43) = 7.30$ ,  $p = .01$ ]. However, when personal identity was salient, there was no significant difference in contributions as a function of leader [ $M_s = 151.98$  vs  $162.47$ ,  $SD_s = 63.04$  and  $58.17$ ;  $F(1, 47) < 1$ ].

Fifth, a significant two-way interaction emerged between block and leader fairness [ $F(1, 86) = 8.19$ ,  $p < .005$ ] (remember that leader fairness was manipulated only after the first block of sessions). Contributions rose if leaders acted fairly by keeping their promise to the group (Block 1 vs 2:  $M_s = 165.74$  vs  $191.31$ ,  $SD_s = 65.21$  and  $75.15$ , respectively) [ $F(1, 47) = 6.99$ ,  $p < .01$ ]. If leaders acted unfairly, however, there was no change in contributions (Block 1 vs 2:  $M_s = 170.30$  vs  $164.70$ ,  $SD_s = 65.04$  and  $64.54$ ) [ $F(1, 45) < 1$ ].

This two-way interaction was qualified by a significant three-way interaction with identity [ $F(1, 86) = 6.38$ ,  $p < .05$ ]. We expected the fairness manipulation to have a stronger impact in the social identity condition. The relevant means are summarized in Table 2. To test our prediction, a 2 (Identity)  $\times$  2 (Leader fairness) ANOVA was performed on the second block of sessions. The expected interaction between identity and fairness was found [ $F(1, 86) = 5.30$ ,  $p < .05$ ]. When social identities were salient, people contributed more when they were monitored by a fair rather than an unfair leader [ $F(1, 43) = 11.01$ ,  $p < .005$ ]. But when personal identities were salient, no such differences in contributions were found [ $F(1, 47) < 1$ ].

### Exploratory Analyses

Were the positive effects of leader commitment and fairness on members' contributions reflected in more positive self-esteem ratings? To examine this, a 2 (Identity)  $\times$  2 (Leader fairness)  $\times$  2 (Leader commitment) ANOVA on the average self-esteem score was performed. There was no effect of leader commitment on self-esteem [ $F(1, 86) < 1$ ], but there was a significant effect for leader fairness [ $F(1, 86) = 33.10$ ,  $p < .001$ ]. Group members reported higher self-esteem with a fair leader than with an unfair leader ( $M_s = 5.06$  vs  $3.88$ ,  $SD_s = 1.00$  and  $1.04$ , respectively). However, this effect was not the same in both identity conditions [ $F(1, 86) = 8.64$ ,  $p < .005$ ]. Only the self-esteem of people whose social identities were salient was affected by a procedurally fair (vs unfair) leader [ $M_s = 5.29$  vs  $3.47$ ,  $SD_s = 1.22$  and  $3.47$ , respectively;  $F(1, 43) = 25.84$ ,  $p < .001$ ]. Leader fairness also had a significant effect on the self-esteem of people whose personal identities were salient [ $M_s = 4.84$  vs  $4.26$ ,  $SD_s = 0.70$  and  $0.76$ ; respectively;  $F(1, 47) = 7.60$ ,  $p < .01$ ], but this effect was much weaker.

Could greater self-esteem account for the increase in the contributions from people whose social identities were salient under a fair leader? To explore this issue, a 2 (Identity)  $\times$  2 (Leader fairness)  $\times$  2 (Leader commitment) ANCOVA, with self-esteem scores as a covariate, was performed on the second block of contributions. This analysis revealed a significant main effect for the covariate  $\beta = .26$ ,  $F(1, 85) = 8.13$ ,  $p = .005$ ], indicating a positive link between self-esteem and contributions. Furthermore, the significant interaction between identity and leader fairness was weaker [ $F(1, 85) = 3.27$ ,  $p < .07$ ; versus  $F(1, 86) = 5.30$ ,  $p < .05$  in the original analysis], when corrected for the covariate.

### Summary of Results

These results provided support for all of our hypotheses. As we expected, people cooperated more with leaders in solving public goods when their social rather than personal identities were salient. And when social identities were salient, people were more sensitive to a leader's commitment and fairness. The mediational analysis showed that the effect of leader's fairness could be explained, at least in part, by the beneficial influence of leader fairness on self-esteem.

### Experiment 2

Experiment 1 was the first empirical demonstration of how relational concerns can affect cooperation with leaders in public goods. When social identity was salient, members were more sensitive to the leader's commitment and fairness. The latter effect is an extension of research on the

group-value model (Tyler & Lind, 1992), but the first effect is new and therefore warranted replication. This was the first objective of our second experiment. The second objective was to test the other half of our theoretical model. If personal rather than social identity is activated, we would expect instrumental aspects of leadership to be more influential. Following the logic from the first experiment, people should be more cooperative with leaders they expect to affect their material outcomes when personal rather than social identity is salient. To investigate this, we pitted a leader high on group commitment against a leader high on traditional leadership skills (e.g., planning, communication, and organization), who presumably would be more successful in providing material rewards.

A few other minor differences between the experiments are also worth noting. First, in Experiment 1 information about the leader's commitment was based on how strongly members identified with their small group rather than with their university (the dominant intergroup category). In Experiment 2, we provided leader information that was based on commitment to both group and university. Second, we failed to find an effect of leader commitment on members' self-esteem in Experiment 1, so we did not include self-esteem in Experiment 2. Third, for exploratory reasons, we decided to manipulate how the leader was installed in the group. Group members could either elect a leader or the leader would be assigned to the group (as in Experiment 1). The role of leader selection has not, to our knowledge, been investigated before in social dilemma research.

Two specific predictions were made. Once again, we expected higher contributions when a social rather than a personal identity was salient (*Hypothesis 1*). Second, we predicted an interaction between members' identity and the type of leader (*Hypothesis 2*). Because of their relational needs, people whose social identities are salient should contribute more under a committed leader than under a leader with traditional leadership skills. Because of their instrumental needs, however, people whose personal identities are salient should contribute more under a skilled rather than a committed leader.

## Method

### *Participants and Design*

Seventy-two British undergraduates, between ages 18 and 21 years, participated in groups of six. They were paid £3 (approximately \$5) for their participation. Each participant was randomly allocated to one of eight experimental conditions in a 2 (Identity: personal vs social)  $\times$  2 (Leader selection: elected vs appointed)  $\times$  2 (Leader type: skilled vs committed) between-participant factorial design.

### *Procedure*

Upon arrival in the laboratory, participants were seated in personal cubicles, each of which contained a computer, a table, and a chair. Each participant was assigned a personal code letter. Although participants believed that everyone had a different letter, all of the participants were assigned the same letter (C).

*Introduction to public goods dilemma.* Participants received detailed instructions about the public goods dilemma task, essentially the same as the instructions used in Experiment 1.

*Manipulation of identity.* The identity manipulation was exactly the same as in Experiment 1. In the social identity condition, an intergroup comparison between universities was stressed, whereas in the personal identity condition, individual comparisons among students were stressed.

*Information about leader.* Participants were told that a leader would be chosen from within their group. To facilitate that process, they were asked several questions about their leadership skills and about the extent to which they identified with Southampton University (SU).

The leadership skill questions were taken from Ritchie and Moses's (1983) list of predictors of managerial success: (1) "How well do you communicate verbally?", (2) "How aware are you of your social environment?", (3) "How high are the personal standards you set yourself?", (4) "How resistant are you to stress?", (5) "How good are your organizational and planning skills?", (6) "How objective are you about your own performance?", (7) "How broad ranging are your interests?", and (8) "How intolerant are you of uncertainty?" All ratings were made on 7-point scales ranging from *not at all* (1) to *very much* (7). Ratings were combined into a single scale ( $\alpha = 0.56$ ).

Participants also answered eight group commitment questions: (1) "How committed do you feel to SU?", (2) "How much do you like SU?", (3) "To what extent do you identify with SU?", (4) "How important is SU to you?", (5) "How committed do you feel to this group?", (6) "To what extent do you identify with this group?", (7) "How much do you like the members of this group?", and (8) "How much do you fit into this group?" Again, all ratings were made on 7-point scales, ranging from *not at all* (1) to *very much* (7). Ratings were again combined into a single scale ( $\alpha = 0.89$ ).

Participants were told that the selected leader would not participate directly in the contribution sessions, but would monitor the group instead. The leader could punish group members with a fine of 30 pence per session if they did not contribute sufficiently. The average scores of group members on the leadership skills and commitment questions were then shown on the screen (using the personal letter codes). Participants in half of the experimental conditions were asked to indicate the personal letter of the group

member they wanted to lead the group (*election condition*). They were told that the leader would be the person who was chosen by the majority of group members. In the other half of the conditions, participants were told that the experimenter would decide which group member would be the leader (*appointment condition*).

*Type of leader.* Depending on the experimental condition, either Person A or Person B was named as leader of the group. Person B was ranked first on the leadership skills scale and fourth on the commitment scale (*skilled leader*), whereas Person A was ranked first on the group commitment score and fourth on the skills scale (*committed leader*). Thus, Person A was someone with strong group commitment but average leadership skills, whereas Person B was someone with good skills but moderate commitment to the group. Participants were asked to write down the scores of the group leader on both the skills and commitment scales.

Leaders subsequently introduced themselves via an e-mail message. The message read: "The first contribution session will soon start with me as your group leader. Each session, you will be asked how much you wish to contribute. Remember that if you do not contribute sufficiently, I may have to penalize you. You will then have to pay 30 pence, and this amount will be subtracted from the total earnings that you have obtained at the end of the sessions."

*Sessions 1–6.* After this message appeared, the contribution sessions started. After the third session, the leader contacted the group to say that one person (F) failed to contribute sufficiently and was thus fined. After this message, participants played another set of contribution sessions. Throughout the task, participants themselves were not fined.

*Dependent measures.* Several questions were asked to check our manipulations. To check the identity manipulation, we asked participants how much they identified with the group, fit into the group, and liked the members of the group. All these ratings were made on 7-point scales ranging from *not at all* (1) to *very much* (7). Ratings were combined into a single identification score ( $\alpha = 0.87$ ). To check the success of the leader selection manipulation, we asked how much impact the group had on the selection of a leader. Finally, participants were asked to recall the letter code of the leader, as well as the leader's commitment and skills scores.

*Debriefing.* After participants answered these questions, the task was interrupted. They were led to another room where the experiment was explained in detail. Care was taken that all participants understood the reasons behind our manipulations. Finally, participants were thanked for their help and dismissed.

## Results

### Manipulation Checks

A 2 (Identity)  $\times$  2 (Leader type)  $\times$  2 (Leader selection) ANOVA on the average identification score revealed only

TABLE 3  
Main and Interaction Effects (Experiment 2)

	<i>F</i> value	<i>p</i> value
Identity	.28	.591
Selection	14.43	.000
Leader type	4.75	.033
Identity $\times$ Selection	.02	.881
Identity $\times$ Leader type	22.10	.000
Selection $\times$ Leader type	.27	.600
Identity $\times$ Selection $\times$ Leader type	.38	.541

*Note.* The *df* for all effects is (1, 64).

the expected main effect for identity [ $F(1, 64) = 9.19$ ,  $p < .005$ ]. Participants in the social identity condition exhibited significantly stronger group identification than participants in the personal identity condition ( $M_s = 4.08$  vs  $3.44$  and  $SD_s = 0.92$  vs  $0.83$ , respectively). The average score in the latter conditions was significantly below the midpoint (4.00) of the rating scales [ $t(35) = -3.95$ ,  $p < .001$ ]. No other significant effects were found for this measure.

A 2 (Identity)  $\times$  2 (Leader Type)  $\times$  2 (Leader selection) ANOVA was performed on the selection procedure, revealing a significant main effect for leader selection [ $F(1, 64) = 4.51$ ,  $p < .05$ ]. Participants in the election condition thought that their group had more impact on the selection of the leader than did participants in the appointment condition ( $M_s = 4.36$  vs  $3.82$  and  $SD_s = 2.04$  vs  $2.15$ , respectively). No other significant effects were found for this measure.

Finally, all the participants correctly recalled the code of their leader as well as his or her ranking on the commitment and skills scales. The results of these checks showed that all of our experimental manipulations were again successful.

### Contribution Decisions

A 2 (Identity)  $\times$  2 (Leader type)  $\times$  2 (Leader selection) ANOVA on the average score across the six contribution sessions was performed (see Table 3).<sup>3</sup>

First, a significant main effect was found for the leader selection method [ $F(1, 64) = 14.21$ ,  $p < .001$ ]. People contributed more overall under an elected rather than an appointed leader ( $M_s = 221.29$  vs  $175.78$  and  $SD_s = 46.01$  vs  $75.33$ , respectively).

Second, a significant effect for leader type emerged [ $F(1, 64) = 5.10$ ,  $p < .05$ ]. Participants contributed more under a skilled leader than under a committed leader ( $M_s = 215.39$  vs  $185.48$  and  $SD_s = 54.61$  vs  $71.42$ , respectively).

Third, there was no significant main effect for identity in

<sup>3</sup> A preliminary analysis that included the six contribution sessions yielded essentially the same results as when the sessions were grouped together.

TABLE 4  
Contributions as a Result of Identity and Leader Type

Identity	Leader type	Sessions 1–6
Social	Skilled	181.61 <sup>b</sup> (41.93)
	Committed	210.07 <sup>a</sup> (64.87)
	<i>M</i>	195.84 (53.40)
Personal	Skilled	242.42 <sup>a</sup> (48.75)
	Committed	154.74 <sup>b</sup> (68.98)
	<i>M</i>	198.58 (58.87)
	Overall <i>M</i>	197.21 (56.14)

*Note.* Means with a different superscript differ significantly at  $p < .05$ ; standard deviations are given in parentheses.

this study [ $F(1, 64) < 1$ ]. Contrary to our predictions, people contributed roughly equal sums of money whether their social identities ( $M = 191.73$ ) or personal identities ( $M = 198.57$ ) were salient.

Finally, there was a significant interaction between members' identity and leader type [ $F(1, 64) = 21.96, p < .001$ ], just as we predicted. The relevant means are summarized in Table 4. People contributed more under a committed rather than a skilled leader when their social identities were salient [ $F(1, 34) = 2.30, p < .07$ ]. Conversely, people contributed more under a skilled than a committed leader when their personal identities were salient [ $F(1, 34) = 19.93, p < .001$ ].

### Summary of Results

The results of Experiment 2 provided partial support for our hypotheses. Unlike the results of Experiment 1, there was no evidence here that participants cooperated more with leaders when social rather than personal identities were salient. This may be due to the fact that when social identities were salient, people only responded strongly to leaders who were committed rather than skilled.

## GENERAL DISCUSSION

In this research, we used an experimental public goods task to examine the role of identity processes in group members' cooperation with their leaders in securing common goods. Our claim was that the influence of leaders would vary to the extent that they fulfilled both the instrumental (solve the free-rider problem) and relational (contribute to group identity/belonging) needs of group members. But the relative importance of these needs was expected to depend upon members' identification with their group. In accordance with a relational perspective on cooperation (Van Vugt & De Cremer, 1999), our findings showed that individual contributions rose when groups were monitored by committed and fair group leaders. However,

these leader attributes were more influential for members who identified strongly with their groups.

The first major contribution of this research is that leader's effectiveness in managing social dilemmas appears to be contingent upon their commitment toward the group. In both of our experiments, highly committed group leaders were able to raise contributions, but this was true only when the social identities of group members were salient. In contrast, when personal identities were salient, a leader's commitment made no difference at all. Members responded then only to leaders who were expected to improve the group's efficiency because of their intrinsic leadership skills. These results suggest that different criteria are used to evaluate "good" leadership, depending on members' identification with their group.

More specifically, leaders are primarily expected to deal effectively with the free-rider problem in social dilemmas, thereby ensuring positive outcomes for both the group and the individual. This is why members whose personal identities are salient cooperate only with skillful leaders, who are expected to tackle free riding. In groups where social identities are salient, however, there are fewer concerns about material outcomes because people trust each other to cooperate voluntarily (Kramer & Goldman, 1995). In such groups, leaders are expected to fulfill needs that pertain to the value of group membership. For example, in an intergroup context (like the one we manipulated), leaders should show a strong desire to belong to this group rather than to some other, and they must be able to protect the group's identity and goals vis-à-vis other groups. These needs are more likely to be met by leaders who have a strong group commitment.

Our findings are consistent with a recently developed social identity model of leadership (Hogg, 2001). Research on this model shows that in salient intergroup contexts, the member who is most prototypical of the group—the person who best embodies the group's main values and positions—is the most influential member and likely to be chosen as its leader (Hains et al., 1997; Hogg et al., 1998). Our findings show that influence also depends on motivational aspects of leadership, such as the strength of group commitment.

A second major finding of our research is that cooperation with leaders is influenced by intragroup aspects of leadership, in particular the fairness of procedures. A leader's decision to keep (rather than withdraw) a promise to group members enhanced their contributions significantly, but more so if members' social identity was salient. Further, when social identities were salient, self-esteem was strengthened by a fair rather than unfair leader. The effect of leader fairness on self-esteem was weaker when personal identities were activated, and self-esteem mediated, in part, the effects of leader fairness on contributions. These findings provide direct experimental support for the group-value

model (Tyler & Lind, 1992). According to that model, quality of treatment by leaders and authorities communicates social identity information to people, namely respect and pride in their group. An implication of the model is that relational information is more important for people who identify with their group, which is what we found in our research.

Third, Experiment 1 showed that cooperation with leaders was higher overall when social rather than personal identities were salient. Yet we did not replicate this result in Experiment 2. One explanation is that in the second experiment we pitted an instrumental leader (skills) against a relational leader (commitment) and found that people were sensitive to a person with leadership skills when their personal identities were salient. This obscured a main effect for identity. It is also worth noting that previous research on social dilemmas is not entirely conclusive about the impact of group identity on cooperation (Bouas & Komorita, 1995; Kerr, 1992). It is perhaps better to view social identity as a factor that moderates the influence of structural factors, such as incentives, rules, and leadership on contributions.

Finally, in an exploratory way we found that the selection procedure for leaders matters. People's contributions were higher with an elected leader than with an appointed leader. This is the first empirical demonstration of this leadership effect in the context of public goods, and it may have important implications. Perhaps elected leaders are perceived as more legitimate, which makes them more influential at producing cooperation (Hollander & Julian, 1970). The precise mechanisms behind this effect could be the focus of further research.

#### *Potential Limitations, Strengths, and Future Directions*

A strength of this research is that we are among the first to examine the impact of leadership in a social dilemma context (for exceptions, see De Cremer, in press; and Van Vugt & De Cremer, 1999). Given that most social dilemmas are hierarchically structured, it is important to know when people will give up their own self-interest and cooperate with authorities and leaders. It is encouraging in this regard that our experimental findings are consistent with the results of field research on social dilemmas. For example, Tyler and DeGoey (1995) found that citizens' willingness to cooperate with local authorities in alleviating a social dilemma crisis (a water shortage) was influenced by the perceived fairness of these authorities. Moreover, and consistent with our perspective, these fairness judgments were most important for people who identified strongly with their local community.

Some limitations of our research are also worth discussing. One is the fact that we provided no feedback to participants about how well their groups performed during the sessions. Evaluations of leaders may depend on whether they are successful in producing good group outcomes. If

the claim often made about groups is right, that "united they stand, and divided they fall," then instrumental needs may become important even for people whose social identities are salient when leaders repeatedly fail to produce common goods. Future research could thus examine how performance feedback influences the effectiveness of different leaders in groups whose members have different needs.

Another possible limitation involves the issue of whether the positive effects of fair and committed leaders were totally noninstrumental. For example, breaking a promise may have affected members' outcome expectations because there was no possibility for removing any penalties members received. And a committed leader may have increased the expectation of achieving good outcomes. If that were true, of course, then we would expect everyone to react to leader fairness and commitment, even people whose personal identities were salient. Although there was a slight tendency for such persons to cooperate more with a fair and a committed leader, neither of these effects was strong. So, we can assume that our manipulations of leader fairness and commitment were indeed largely relational rather than instrumental.

A third limitation concerns the manipulation of leader commitment versus skill in the second experiment. We decided to contrast leaders who were high on one dimension and moderate on the other. Ideally, we should have manipulated these dimensions orthogonally to check whether our results were not due to a specific combination of skills. Because we were primarily interested in the relative weight that members with different identities placed on instrumental versus relational information about leaders, we chose to focus on these extremes. Future research could examine how group members respond to leaders who possess one quality or the other (or neither of them).

We believe that more research is needed on the role of leadership in social dilemmas. For example, does leader prototypicality (Hogg, 2001) have a similar effect on cooperation as leader commitment? Are people whose personal identities are salient more likely to cooperate with a leader from outside instead of inside their group (Van Vugt & De Cremer, 1999)? What happens to contributions in groups if a relational or instrumental leader decides to step down? When do group members wish to remove a leader? The public goods task provides an excellent laboratory to study such issues because it addresses the fundamental conflict that groups and leaders so often face (the free-rider problem) while at the same time fosters a positive climate among group members.

This "dilemma" is best illustrated with a practical example. Organizational welfare depends, in part, on the willingness of employees to go beyond their formal task roles (e.g., take up an administrative role). To encourage such organization citizenship behaviors (OCB; Organ, 1988), various strategies could be employed by managers. If employees'

organizational identification is high, then it is very important for managers to be procedurally fair and display strong organizational commitment. However, if organizational identification is weak and employees are primarily instrumentally motivated, then management should encourage OCB's in quite a different way. Under such conditions, a system that promises rewards (salary increment, promotion) for employees who perform OCB's may be more effective.

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