

Cooperating If One's Goals Are Collective-Based: Social Identification Effects in Social Dilemmas as a Function of Goal Transformation¹

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Prior studies of the effect of group identification on cooperation in social dilemmas have advanced 2 competing accounts: the goal-transformation hypothesis, which holds that identification makes personal and collective goals interchangeable; and the goal-amplification hypothesis, which states that identification induces positive expectations about others' cooperative behavior. However, prior studies have neglected to assess the process measures necessary to pit the one account against the other. The present study showed that the effect of identification was moderated by participants' social value orientation. Identification influenced proselves' cooperation more than prosocials' cooperation. Mediation analyses further showed that the effect of our identification manipulation was mediated by participants' sense of collective self, and not by their expectations.

Social dilemmas can be defined as situations in which personal and collective interests are at odds (Dawes, 1980; Komorita & Parks, 1994; Messick & Brewer, 1983). In its simplest form, a social dilemma represents an interdependence situation in which people must independently decide to cooperate or not. Hence, each group member is confronted with a choice between two options: to cooperate or to defect. In these interdependence situations, the dominant choice is to act in one's own best interest, because the

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individual's incentives for not cooperating are greater than for cooperating, regardless of what others do (Dawes, 1980). However, if all group members opt for this dominant choice, all will end up worse than if all make the choice to cooperate.

Rational choice theories (e.g., Luce & Raiffa, 1957) assume that people will pursue their own self-interests; therefore, cooperation in groups seems difficult to achieve. However, according to Edney (1980), "The truer perspective is that human beings probably have greater capacities for both socially constructive (i.e., collective interest) and destructive behaviors (i.e., self-interest) around resources" (p. 148). In other words, under specific situations, people may indeed be inclined to exhibit cooperative behavior in social dilemmas. A typical solution to this conflict between personal and collective interest—and one that truly incorporates a social focus—is increasing the extent to which decision makers identify with the collective.

The major purpose of the present research is to examine the psychological mechanisms underlying this social identification effect in social dilemmas by focusing on the role of two psychological variables that may account for this effect: expectations about other group members' cooperation, and the sense of collective self inherent in social identification. Following prior research (De Cremer & Van Vugt, 1999), this was investigated by examining the interaction of social identification with individuals' social value orientation. *Social value orientation* is a stable individual-difference variable that refers to the value people assign to their personal welfare versus the collective welfare (Messick & McClintock, 1968; Van Lange & Kuhlman, 1994). In an important extension of this research by De Cremer and Van Vugt, we also assessed the mediating roles of group members' expectations of others' cooperation and of the sense of collective self that is inherent in identification.

Social Identification Effects in Social Dilemmas

A number of studies and reviews have concluded that the extent to which individual decision makers define themselves in terms of their group membership may function as a reference point for their decision behavior (Brewer & Kramer, 1986; Brewer & Schneider, 1990). According to Turner and colleagues (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), when affiliation with the group or collective is reinforced, "the group is the basis of cooperation" (p. 34). Empirical studies have indeed shown in a variety of social dilemma settings that when people exhibit strong group identification, relative to weak group identification, they invest more in public good dilemmas and exercise greater restraint in resource dilemmas (Brewer & Kramer,

1986; De Cremer & van Dijk, 2002; De Cremer & Van Vugt, 1999; Kramer & Brewer, 1984; Kramer & Goldman, 1995, Wit & Wilke, 1992). Yet, until now, it has not been clear exactly how social identification effects produce this collectively desirable behavioral outcome.

We argue that because of the specific nature of the social dilemma conflict (inherent in all types of social dilemma) in which one's individual interest is plotted against the collective interest, two processes may be particularly important. First, in social dilemmas, decision makers may fear being exploited by the others and ending up as the "sucker" (Kerr, 1983). Therefore, to increase cooperation, this element of risk should be reduced: a situation that can be achieved by increasing people's expectations that the others will cooperate (De Cremer, Snyder, & Dewitte, 2001; Pruitt & Kimmel, 1977). As positive expectations increase, confidence in the goodwill of others is increased and fear of exploitation is reduced, lowering the threshold to engage in cooperation (De Cremer et al., 2001; Van Leeuwen & van Knippenberg, 2002).

Research on intergroup relations indeed has suggested that an enhanced sense of group identification may produce more positive expectations toward other in-group members, relative to out-group members (i.e., in-group favoritism; Tajfel & Turner, 1986). For example, Brewer (1979) argued that in-group members are judged as more trustworthy and more honest than out-group members, particularly when group identity is reinforced (Brewer, 1979), a process that is referred to as *group-based trust* (Brewer, 1981). Thus, a first explanation of the social identification effect in social dilemmas is that higher identification is associated with more positive expectations about the cooperation of others, and that these expectations invite one's own cooperation.

A second explanation lies in the merging of self and group that is inherent in social identification. Social identification reflects a sense of oneness with the group, where the self is defined in terms of membership in and characteristics of the group (e.g., Hogg & Abrams, 1988; Smith & Henry, 1996; Turner et al., 1987). The more the self is defined in collective terms (i.e., the collective self; Brewer & Gardner, 1996; Turner et al., 1987), the more collective goals will be experienced as own goals, and collective interests will be experienced as self-interests (cf. Brewer, 1991; see also De Cremer & Van Vugt, 1999; van Knippenberg, 2000; van Knippenberg & Ellemers, 2003). Accordingly, the higher the group identification, the less likely it will be that motives such as greed and free riding (which are rooted in the personal self-interest) will dominate decisions (cf. Rapoport, 1967) and, therefore, the higher the level of cooperation. Thus, the second explanation of the social identification effect in social dilemmas is that high compared with low identification is associated with a different definition of self and as a consequence with a different definition of self-interest.

To summarize, the literatures on social dilemma and social identification suggest two processes that may account for the effect of social identification on cooperation in social dilemmas: The effect of identification may be caused by its influence on expectations about others' cooperation or by the sense of collective self (which will make personal and collective goals interchangeable) that is inherent in identification. Both processes should be able to reduce the influence of two dominating motives in social dilemma situations: fear and greed.

Research has attempted to answer the question of which of the two processes primarily underlies the cooperation-enhancing effect in social dilemmas by examining the interaction between social identification and group members' social value orientation (De Cremer & Van Vugt, 1999; De Cremer & van Dijk, 2002; Kramer & Goldman, 1995). *Social value orientations* (SVOs) are individual differences in how people evaluate outcomes for themselves and others in interdependent situations (McClintock, 1972; Messick & McClintock, 1968). Broadly speaking, people can be classified as *prosocial* individuals (i.e., aimed at maximizing joint outcomes and equality in outcomes), *competitors* (i.e., aimed at maximizing the difference between outcomes for self and other), or *individualists* (i.e., aimed at maximizing own outcome, regardless of other's outcome). The latter two are usually referred to as *proselfs* (Van Lange & Liebrand, 1991). Previous research on this individual-difference variable has demonstrated convincingly that prosocials exhibit more cooperative behavior than do proselfs, and express greater concern with the group as a whole (e.g., De Cremer & Van Lange, 2001; Van Vugt, Van Lange, & Meertens, 1995).

The interactive effects of identification and SVO are especially diagnostic in the study of the effects of social identification on cooperation in social dilemma because SVOs are related to expectations of others' cooperation, as well as to the weight attached to the own self-interest. First, if identification would enhance positive expectations, then prosocials in particular would be influenced in their behavior. This prediction is derived from two social dilemma findings. According to Pruitt and Kimmel's (1977) goal expectation theory, two conditions must be met to elicit cooperation: (a) one should have a prosocial or cooperative goal; and (b) one should expect others to cooperate.

Second, some studies have suggested that prosocials, relative to proselfs, may be more inclined to believe that others cooperate more. One specific reason for this is that prosocials, relative to proselfs, expect quite a large degree of variability in levels of cooperation across persons (Kelley & Stahelski, 1970; see also Van Lange, 1999). Positive expectations that others will cooperate (as induced by an identification manipulation) thus should reduce this variability in expectations among prosocials considerably, but not

necessarily among proselves (i.e., they are assumed to expect less cooperation across situations and persons). If a strong sense of group identification reinforces positive expectations, then those with an initial prosocial goal (i.e., a sense of collective self) should be influenced most in their contribution behavior, which is referred to as the *goal-amplification hypothesis* (De Cremer & Van Vugt, 1999).

The goal-amplification hypothesis can be contrasted with the argument of De Cremer and colleagues (De Cremer & Van Dijk, 2002; De Cremer & Van Vugt, 1999; see also van Knippenberg, 2000) that if group identification affects people's sense of collective self and, therefore, the definition of self-interest (i.e., shifting from personal to collective self-interest), the decisions of proselves in particular should be influenced. From the SVO literature, it follows that proselves, as compared with prosocials, will assign more weight to outcomes for self than to outcomes for others (e.g., McClintock, 1972). As a consequence of this dispositional difference in the weight assigned to self-interest, proselves' behavior should be more contingent on factors that influence the definition of the self-interest, as identification is proposed to do.

Brewer (1979) argued that a strong sense of identification promotes group-oriented actions because "the reduced differentiation between one's own and others' outcomes associated with in-group formation provides one mechanism for increasing the weight given to collective outcomes in individual decision making" (p. 322). Elaborating on these insights, it can be predicted that group identification, as a result of an enhancement of people's sense of collective self, should influence contribution behavior more among proselves than among prosocials. This is referred to as the *goal-transformation hypothesis* (De Cremer & Van Vugt, 1999).

Studies employing this identification by SVO approach have yielded first evidence in favor of the goal-transformation hypothesis. For example, De Cremer and Van Vugt (1999) demonstrated in a series of public good dilemma studies that proselves were most strongly influenced by manipulations of group identification. This effect was replicated by De Cremer and Van Dijk (2002), who showed that the effect is particularly strong when people lack information about prior failure or success (for some partial evidence, see Kramer & Goldman, 1995). However, although these reported interactions between identification and SVO provide us with a strong (theory-derived) indication in favor of the goal-transformation hypothesis, no research to date has also examined the process variables that are assumed to underlie this interaction effect. This is problematic because finding behavioral effects consistent with the proposed hypothesis does not necessarily mean that the associated processes occur as well. Therefore, for a proper test of the merits of the goal-amplification and goal-

transformation hypotheses, it is necessary for the proposed mediating processes of the social identification effect to be examined, in addition to behavioral measures.

Such is the aim of the present study. In this study, we extended earlier research with two key process measures: a measure of expectations of others' cooperation, and a measure of identification. The former *may* be affected by manipulations of identification, while the latter, of course, *should* be affected by manipulations of identification. The goal-amplification hypothesis requires that the former mediates the effect of manipulations of identification, whereas the goal-transformation hypothesis requires that the latter mediates the effect of manipulations of identification on cooperation.

Based on De Cremer and Van Vugt's (1999) findings in support of the goal-transformation hypothesis (see also De Cremer & Van Dijk, 2002; Kramer & Goldman, 1995; van Knippenberg, 2000), we predict that our identification measure (reflecting a sense of collective self) in interaction with SVO will mediate the effect of identification that in earlier studies has been found to be moderated by SVO. Finding both evidence for the interactive effect between SVO and identification, and the mediating effect of a sense of collective self by SVO will provide unambiguous evidence in favor of the goal-transformation hypothesis.

Furthermore, and contrary to the assumptions of the goal-amplification hypothesis, we expect that expectations, rather than a sense of collective self, will mediate the main effect of SVO (i.e., more cooperation by prosocials than by proselfs). This prediction is derived from research that has demonstrated that prosocials, relative to proselfs, exhibit the same level of cooperation as they expect from others (see Van Lange & Kuhlman, 1994). Because prosocials are generally more cooperative than are proselfs (e.g., De Cremer & Van Lange, 2001), their expectations about other's behavior are assumed to be more positive.

Finally, another aspect that distinguishes the present research from the aforementioned studies is that we used another type of identification manipulation. In these earlier studies, identification was manipulated by introducing a social comparison between one's own group and another group to enhance feelings of group identification (i.e., social competition; Turner, 1975). One aspect of this social comparison manipulation is that the notion of competition becomes very pervasive. Consequently, people may cooperate more with their own group as a result of motives related to winning this competition, rather than experiencing a strong sense of collective self. Therefore, to further validate and generalize the discussed identification effect, we used an identification manipulation that varies self/in-group similarity, which is assumed to be a key determinant of

identification (e.g., Hogg & Abrams, 1988; Turner et al., 1987), rather than intergroup comparison/competition.

Method

Participants and Design

Study participants were 108 undergraduate students (40 male, 68 female) from different majors from the University of Amsterdam. Their mean age was 20.6 years. The participants were randomly assigned to the high or low identification condition, and were classified as either prosocial on the basis of an SVO measure. This yielded a 2 (SVO: prosocials vs. proselfs) \times 2 (Identification: high vs. low) between-subjects factorial design, with cell sizes varying from 20 to 26 participants.

Procedure

Upon their arrival in the laboratory, participants were seated in separate cubicles containing a computer that was used to administer the experiment.

Assessment of social value orientation. Participants first completed a computerized version of the nine-item Decomposed Games measure (Messick & McClintock, 1968; Van Lange & Kuhlman, 1994) to assess their SVO. Each item contains three alternative outcome distributions, with points for oneself and an (anonymous) other. Each outcome distribution represents a particular orientation. An example is the choice between Option A (500 points for self, 500 points for other), Option B (560 points for self, 300 points for other), and Option C (500 points for self, 100 points for other). Option A represents the *cooperative* or *prosocial* orientation because it provides an equal distribution of outcomes and maximizes joint outcomes (i.e., 500 points each for self and other). Option B represents the *individualistic* option because own outcomes are maximized (560 points vs. 500 points for either Option A or C). Finally, Option C represents the *competitive* orientation because this distribution maximizes the difference between own outcome and other's outcome (Option C: $500 - 100 = 400$ points; Option A: $500 - 500 = 0$ points; Option B: $560 - 300 = 260$ points).

Participants were classified as prosocial, individualistic, or competitive when at least six choices (out of nine) were consistent with one of the three orientations (e.g., McClintock & Allison, 1989; Van Lange & Kuhlman, 1994). In the present study, we only used the comparison between prosocials and individualists, because the group of competitors was considered too

small for subsequent analyses.³ Therefore, out of a total of 108 individuals, 46 (42.6%) were identified as prosocials, while 42 (38.9%) were identified as individualists.

Introduction to the public good dilemma. After they completed the Decomposed Games (Messick & McClintock, 1968; Van Lange & Kuhlman, 1994), participants were introduced to a decision-making study in 5-person groups. They were told that they would be participating in a collective decision-making task in which they would be asked several times to contribute toward the establishment of a public good. To avoid endplay, no specific number of contribution sessions was mentioned (Murnighan & Roth, 1983).

Each participant was given an endowment of 100 chips (each worth 5 euro cents; approx. \$0.03 US) at the beginning of each contribution session, and participants were free to choose any amount they wanted to contribute (from 0 chips to 100 chips). It was explained that the total amount contributed by the group would be multiplied by 2 and then divided equally among all group members. The number of chips that a participant did not contribute to the group would accrue totally to oneself.

Manipulation of group identification. To manipulate group identification, we gave participants bogus feedback about the composition of their groups. In the *high identification* condition, participants learned that all but one member of their group had the same study major as the participant himself or herself. In the *low identification* condition, participants learned that all other members of their group had the same study major, which was different from the participants' own major. In this way, the group was equally homogeneous in terms of study major (4 members with the same major, 1 with a different major) across conditions, while the similarity between the participant and the group varied across conditions.

Dependent measures. To assess participants' level of group identification, five items were asked, reflecting the degree to which one has a sense of collective self (Van Leeuwen, van Knippenberg, & Ellemers, 2000). Items include "I see myself as a typical member of this group," and "I feel a tie with this group." Items were rated on a 7-point scale ranging from 1 (*absolutely not*) to 7 (*very much so*). To assess participants' expectations about others' cooperative intentions, they were asked how much they expected the others to contribute. To assess the degree of cooperation, participants were asked how much they were willing to contribute (range = 0–100 points).

³We are aware that previous research has combined individualists and competitors into one group of prosocials. However, because a social dilemma constitutes a clear conflict between one's own personal interest and the collective interest, we decided to compare cooperators (i.e., prosocials) with individualists (i.e., prosocials) in our analyses because the motives of these two types of individuals best represent this conflict between interests. As such, this allows for an unambiguous interpretation of our findings.

Results

Identification

Testifying to the success of the identification manipulation, a 2×2 ANOVA on the identification measure reveals a main effect of identification, $F(1, 84) = 10.32$, $p < .005$, showing that the sense of a collective self was higher ($M = 3.96$, $SD = 1.12$) in the high-identification condition than in the low-identification condition ($M = 3.10$, $SD = 1.33$). Neither the SVO main effect, $F(1, 84) = 0.49$, *ns*, nor the interaction, $F(1, 84) = 0.04$, *ns*, affected identification.

Expected Contributions

A 2×2 ANOVA on the contribution expected from the other members of the group reveals only a significant main effect of SVO, $F(1, 84) = 4.75$, $p < .05$. Prosocials expected higher contributions ($M = 51.91$, $SD = 29.67$) than did proselves ($M = 39.41$, $SD = 23.25$). Neither the identification main effect, nor the interaction was significant ($F_s < 1$).

Actual Contributions

A 2×2 ANOVA on contributions reveals a main effect of SVO, $F(1, 84) = 3.86$, $p = .05$. Overall, prosocials contributed more ($M = 61.21$, $SD = 30.79$) than did proselves ($M = 47.24$, $SD = 35.58$). The main effect of identification was not significant, $F(1, 84) = 0.31$, *ns*, but the predicted Identification \times SVO interaction was significant, $F(1, 84) = 4.49$, $p < .05$ (see Table 1).

Tests of simple main effects show that when identification was low, prosocials contributed more than did proselves, $F(1, 84) = 9.13$, $p < .003$; but when identification was high, proselves contributed as much as did prosocials, $F(1, 84) = 0.01$, *ns*. Also, tests of the simple main effects of identification show that this was marginally significant for proselves, $F(1, 84) = 3.44$, $p < .07$; but was not significant for prosocials, $F(1, 84) = 1.27$, *ns*.

Mediational Analysis

Because identification did not affect expectations of others' cooperation, we can rule out the goal-amplification account of the identification effect.

Table 1

Group Identification, Contributions, and Expected Contributions as a Function of Social Value Orientation and Identification

Dependent variable	SVO	High identification		Low identification	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Group identification	Prosocial	4.02	1.23	3.22	1.25
	Proself	3.89	1.01	2.98	1.41
Actual contributions	Prosocial	55.65	30.19	66.77	31.40
	Proself	56.57	36.90	37.73	34.26
Expected contributions	Prosocial	48.25	20.54	55.58	25.97
	Proself	41.00	29.67	37.82	29.67

Note. SVO = social value orientation. Entries are means that are rated on a 7-point scale or contributions ranging from 0 to 100 points, with higher values indicating higher identification, contributions, and expectations.

However, it remains important to establish whether the effect of our identification manipulation was mediated by the sense of collective self reflected in our measure of identification—as predicted by the goal-transformation hypothesis—if only to rule out other, alternative explanations (i.e., self-group similarity might affect other, unmeasured variables as well). Put differently, we know that our manipulation affected the sense of collective self, as reflected in our measure of identification, but is this also the reason why the identification manipulation and SVO interacted in affecting contributions? That is, if we can show that (a) the relationship of measured identification with contributions is contingent on SVO, just like the effect of our identification manipulation; and (b) the interaction between measured identification and SVO accounts for (i.e., mediates) the interaction of manipulated identification and SVO, we further bolster our argument that identification drives the observed effect. To address this issue, we conducted a moderated mediation analysis.

In the conventional mediational analysis, the aim is to test whether a main or an interaction effect obtained is mediated by the main effect of the mediator variable. Adding the mediator variable to the ANOVA design or the regression equation and showing that the effect of the mediator is significant—whereas the to-be-mediated effect is no longer significant—is then the final step in the mediation analysis (after showing that the to-be-

mediated effect affects the mediator and the outcome variable; Baron & Kenny, 1986). In the present case, however, we do not propose that measured identification mediates the Identification \times SVO interaction (which could be tested in a conventional mediational analysis), but rather that measured identification mediates the effect of manipulated identification in the Identification \times SVO interaction. That is, we need to show that the moderating effect of manipulated identification in the interaction with SVO is explained by measured identification. This requires that we show that the interaction of measured identification (i.e., participants' identification scores) and SVO mediates the interaction of manipulated identification and SVO. To test this prediction, we entered the measure of identification to the ANOVA design as a continuous variable and tested both the measured identification main effect and the interaction of SVO by measured identification. In addition, the main effects of our identification manipulation and SVO, and the interaction of the identification manipulation by SVO were tested.

In line with our predictions, the measured identification by SVO interaction was significant, $F(1, 82) = 6.42, p < .05$; whereas the (manipulated) identification by SVO interaction was no longer significant, $F(1, 82) = 1.52, p > .20$. Importantly, the main effect of SVO remained significant, $F(1, 82) = 9.06, p < .005$. Interestingly, whereas the main effect of our identification manipulation was not significant in the original analysis nor in the present analysis, $F(1, 82) = 0.18, ns$; the main effect of measured identification was significant, $F(1, 82) = 7.92, p < .01$.

Inspection of the regression weights for the effects of measured identification shows that higher identification was associated with higher contributions ($\beta = .29$ for the identification main effect), and that this relationship was weaker for prosocials than for proselfs ($\beta = -.26$ for the interaction). Tests of the simple main effects of measured identification for each level of SVO further confirm our predictions (i.e., supporting the goal-transformation hypothesis). The simple effect of measured identification was significant and positive for proselfs ($\beta = .38$), $F(1, 82) = 13.63, p < .0001$; but was not significant for prosocials ($\beta = .02$), $F(1, 82) = 0.04, ns$.

Finally, to substantiate further the role of identification, we adopted a bootstrapping procedure, which was proposed by Preacher, Rucker, and Hayes (2007). This bootstrapping procedure provides a direct test of the moderated mediation, or what Preacher et al. labeled the *conditional indirect effects*. More precisely, this analysis provides a test of the conditional indirect effect of the independent variable (manipulated identification) on the dependent variable through the mediator at the two levels of the moderator variable (prosocial and proself orientations). This analysis shows that the indirect effect of manipulated identification mediated by measured identification was

significant for proselves ($z = 2.23$, $p < .03$), but not for prosocials ($z = 1.57$, $p < .12$). Taking the results of all these analyses into consideration, we may conclude, therefore, that a sense of collective self mediated the effect of our identification manipulation in the Identification \times SVO interaction, but not the main effect of SVO.

The next issue we raised was the role of expectations of others' contributions.⁴ We proposed that these expectations would mediate the main effect of SVO. However, because we did not find any evidence in support of the goal-amplification hypothesis (i.e., expectations as an explanation for the identification effect in social dilemmas), we did not predict it to mediate the Identification \times SVO interaction. To examine whether this was true, we tested this prediction in a second mediational analysis in which we—in addition to SVO and the manipulated Identification \times SVO interaction—again added both the expected contributions measure and the manipulated identification by expected contributions interaction to the ANOVA design. The results reveal that the main effect of expected contributions was significant ($\beta = .80$), $F(1, 82) = 150.25$, $p < .0001$; whereas the SVO main effect was no longer significant, $F(1, 82) = 0.17$, *ns*.

Further, if the goal-amplification hypothesis is not valid, the manipulated Identification \times SVO interaction should remain significant. In line with this, ANOVA indeed shows that the expected contributions by identification interaction was not significant, $F(1, 82) = 1.34$, $p > .25$; and that, most importantly, the Identification \times SVO interaction remained significant, $F(1, 82) = 6.21$, $p < .025$. We may conclude, therefore, that expected contributions mediated the main effect of SVO, but not the Identification \times SVO interaction.

Discussion

The fact that social identification influences cooperation suggests a socialized conception of decision making (Kramer & Goldman, 1995), but how does it work actually? Following the present findings, a goal-transformation explanation seems to account best for the social identification effect. Indeed, we found a significant interaction between identification and SVO, showing that proselves were influenced more by the identification manipulation than were prosocials. Furthermore, and more importantly, our mediational analy-

⁴We measured participants' expectations after they had made their decisions. As such, expectations may have been influenced by the main outcome variable of cooperation. However, if this were true, then we should have found that expectations mediated all effects (including the interaction), but this was not the case. In fact, only the main effect of SVO was mediated by expectations.

ses demonstrate that a sense of collective self, and not participants' expectations, mediated the identification effect that was moderated by SVO.

The present findings provide strong support for our prediction that social identification effects in social dilemmas can be explained by people's tendency to include the group and its goals into the self (i.e., goal-transformation hypothesis). Thus, the fact that the identification effect was found only among proselves (who assign more weight to outcomes for the self, relative to those for the group) and that the effect of the identification manipulation was mediated by a measure of identification operationalized as a sense of collective self can be seen as compelling evidence that the social identification effect can be explained primarily by transforming personal goals into collective-based goals (i.e., a sense of collective self). Using the terminology of interdependence theory (Kelley & Thibaut, 1978), enhancing the collective self transforms an existing situation with a given payoff to self and others (i.e., objective matrix) into another situation, in which decisions are based on more broad and collective goals (i.e., effective matrix). As such, our findings add evidence to a growing number of studies advocating the goal-transformation hypothesis as a primary explanation of the social identification effect (De Cremer & Van Dijk, 2002; De Cremer & Van Vugt, 1999; van Knippenberg, 2000).

These results align well with self-categorization theory (SCT; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Following SCT, level of identification may depend on the degree of self-group similarity or perceptions of homogeneity within the group perceived by the group members (e.g., Hogg & Abrams, 1988; Turner et al., 1987). When perceived similarity between self and the group is low, people's sense of self is defined at the level of the individual; whereas they will define themselves at the collective level when self-group similarity is high. More specifically, if this similarity is high, people will use their group membership and sense of a collective self to define themselves and their concurrent goals (Turner, 1982).

In accord with SCT, our manipulation of group identification influenced the self-perception of proselves in such a way as to cause a shift from the personal level toward the higher, more inclusive group level ("me" identity becomes "we" identity). As a consequence, our interpretation (in favor of the goal-transformation hypothesis) implies that self-interest can be defined at many different levels, from narrow personal interest to the interest of the collective (i.e., different levels of abstraction; see Turner et al., 1987). If a collective self is reinforced, self-interest at the personal level is transformed to self-interest at the collective level; thus, cooperation becomes the "rational" choice (Turner et al., 1987).

Contrary to the goal-amplification hypothesis, prosocials remained largely insensitive to the group identification manipulations. One explanation

is that prosocials have more positive expectations about others than do proselves. Therefore, they are less sensitive to information, which further enhances their trust in others' cooperation. However, to date, the results are inconsistent with respect to finding such a relationship between SVO and positive expectations (Parks, 1994; Van Lange, Van Vugt, Meertens, & Ruiters, 1998; for exceptions, see Kuhlman, Camac, & Cunha, 1986; Van Lange, 1999). For example, it has been found that prosocials and proselves, on average, do not differ significantly in dispositions of general trust (Parks, 1994), whereas recent research has shown that, in fact, prosocials are more likely to show reciprocity (De Cremer & Van Lange, 2001).

Despite this inconsistent evidence, some researchers have suggested that rather than expecting reciprocity, prosocials engage in cooperation because they believe it is the morally right thing to do (Beggan, Messick, & Allison, 1988; Sattler & Kerr, 1991; Van Lange & Liebrand, 1991). In this sense, prosocials can be regarded as "genuine" cooperators who cooperate for a particular collective cause, regardless of whether other individuals do the same (Van Lange et al., 1998). Despite these claims, our mediational findings show that expectations mediated the main effect of SVO. This observation shows some similarities to previous research by Van Lange and Kuhlman (1994), who assumed and partly demonstrated that prosocials, relative to proselves, exhibit the same level of cooperation as they expect from others. As such, expectations—in other words, trust in others' cooperative intentions—may thus be related to the actions of prosocials in decision-making situations. Consequently, this finding seems to suggest that the frequently observed effect of SVO in social dilemmas may be related to another important psychological factor in social dilemmas; that is, expectations (although it still must be examined whether expectations are not simply a consequence of prosocials' moral preferences, which is something the present research did not assess).

Before closing, some limitations and strengths must be outlined. An important potential limitation is that we used a single-trial game, which did not allow us to examine additionally how group feedback could influence the identity effect over trials. This is important because the prospect of future interaction often increases cooperation and, after a series of positive interactions, may create trust in the group. It would be interesting, therefore, to replicate the present experiment using a multi-trial game.

An important strength of the study is that we were able to demonstrate strong and compelling evidence, by means of a moderator and mediating approach, in favor of the goal-transformation hypothesis. Moreover, the fact that we also used a different manipulation of group identification than prior studies supporting this hypothesis validates and generalizes the observed identification effect in social dilemmas: Social identification in social dilemmas enhances one's sense of collective self.

Taken together, the present findings are in line with a theoretical account advocating that the primary reason why social identification influences levels of cooperation in social dilemmas is that decision makers include the group and its goals in the self (i.e., collective self). Therefore, they are motivated to pursue the collective welfare. These findings thus illustrate the importance of motivational processes in decision making as a function of the extent to which one feels included in the collective. If this sense of inclusion is salient, then goals are triggered that will serve the collective.

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