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Decisions, Decisions: Securing Lasting Collective Benefits Through Group Discussion and Decision

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Abstract

People respond to social dilemmas more cooperatively following a group discussion. However, group discussion may not adequately account for group members' enduring commitment to be cooperative. In this experiment, on face-to-face groups of 6, we examined whether optimal cooperation would be more likely when groups were required to reach a collective decision about a social dilemma than when the group was able to discuss the dilemma but not make a decision, or when the members did discuss the dilemma. Groups that made decisions showed significantly more cooperation than those that merely discussed or did not discuss. Group discussion was sufficient to increase cohesiveness and identification but these variables did not explain the effects on decisions. Individual cooperativeness persisted into a subsequent decision only if the previous deliberation had involved a group decision. This shows that making decisions, not just sharing preferences, is important for groups to promote social cooperation.

Throughout society individuals and groups are faced with a tension between decisions that favor an individually rational outcome versus a collectively rational outcome. Take for example the negotiations surrounding the Copenhagen climate change agreement. Despite global benefit in cutting national CO² emissions it is potentially politically unpopular and economically damaging for individual countries to do so unilaterally. This tension is conceptually similar to social dilemmas used in psychological research. In a social dilemma participants must decide between an individually and a collectively rational choice. If others cooperate, individual participants will always personally gain more if they choose the individually rational (non-cooperative) choice. However, on average all participants will gain more if all choose the collectively rational (cooperative) choice than if all choose to be non-cooperative (Dawes, 1980). Dilemmas, such as the Copenhagen agreement, are often negotiated within groups (Messick, Moore, & Bazerman, 1997). It is often the case that many, if not all, people initially prioritize protecting their individual interests.

The aim of this paper is explicitly to compare the cooperation rates in a 6 person prisoner's dilemma game (PDG) following no group discussion, a group discussion that prohibits a group decision, or a group discussion that includes a group decision on the best way to choose in the dilemma. Participants are asked to take part in two trials of the PDG, one immediately after the discussion manipulation and one approximately 15-20 minutes later when they are no longer sitting with their group.

We will show that if new groups have some cooperative members, the requirement to reach a collective decision will lead other members to shift towards cooperation. Moreover, this increase in cooperativeness persists after the group has disbanded. That is, initially uncooperative group members may leave the group decision arena convinced to be cooperative. This is very important both for the understanding of responses to experimental social dilemmas and for understanding the dynamics underlying collective outcomes in situations such as the Copenhagen treaty.

The Group Discussion Effect and Group Identity

A reliable phenomenon in social dilemma research is the group discussion effect. When individuals discuss a dilemma in a group they subsequently show greater levels of individual cooperative choice (Caldwell, 1976; Rapoport, 1974; van de Kragt et al., 1986). However, discussion does not always help a group (Sunwolf & Seibold, 1999). For example, groups that engage in free discussion about a problem may make a short cut to a decision without sufficient analysis (Maier, 1970). Groups members can fail to share vital information (Stasser, 1992), may have difficulty attending to task relevant information (Brenner, 1973), and may make decisions that follow majority opinion regardless of its wisdom (MacCoun & Kerr, 1988). Consequently, in a social dilemma, if the majority prefer non-cooperative choices, free discussion may not enable cooperative advocates to share their preferences or they may simply be overruled even when mutual cooperation is the optimal solution to the dilemma. Frey (1995) suggested that to overcome these problems some form of moderating process must be imposed to facilitate group discussions. For example, a group member may be asked to act as a moderator, or the group could follow an imposed procedural rule about how to make its decision.

Interestingly, Lewin (1947) showed that a group decision per se, as distinct from a discussion without a decision, may be important in promoting lasting opinion change. Lewin (1947) was interested in encouraging housewives to increase the level of offal in their family's diet. Families increased their offal intake when the house mother had been in a group that discussed and took a decision to eat more offal than when they had merely been exposed to a lecture espousing the virtues of eating more offal. This suggests that simply the requirement to make a decision about a social dilemma could be sufficient to increase cooperative (optimal) preferences by group members. Indeed, this precisely what was found by Hoptrow and Hulbert (2005).

Dawes, McTavish and Shaklee, (1977) provided evidence that the group discussion effect maybe due to an increase in group identity brought about by a period of discussion. This increase would induce group members to be more concerned about the group's outcome than they might otherwise have been. The group's outcome is analogous to the cooperative choice (Komorita &

Parks, 1996). The lack of a referent group in the design used in this experiment may hinder the formation of group identity. However, we would expect a period of task related discussion to increase levels of cohesion. Higher cohesion should also promote more concern for the group outcomes and an increase in cooperative choice (cf. Hogg & Hardie, 1991). Moreover, Hoptrow & Hulbert (2005) argued that discussion may cause increases in group identity and cohesion but these may not explain the observed increases in cooperation because they fail to take into account the effect of the consensus building process. Indeed Bouas and Komorita (1996) argue that it is a consensus building process that is necessary to promote increases in cooperation. We will measure group identity and cohesion to evaluate their impact on cooperation in this scenario.

A Group Decision Effect and Group Norms

Hoptrow and Hulbert (2005) proposed that the group discussion effect can be explained in terms of a group decision. If the group discussion effect arises because groups actually reach an explicit consensus, then the discussion effect should be eliminated when a group is prohibited from making an explicit decision. However, previous research has not systematically examined effects of discussion in the absence of decision (e.g., decisions could have been reached during discussions), therefore it is not known whether making a decision has a distinct effect over and above that of discussion.

To examine this question this proposition the present experiment explicitly compares the impact of three different deliberation scenarios: when participants do not discuss the dilemma (No Discussion), when participants discuss but must not make any form of decision (Discussion Only), and when participants discuss and make an explicit group decision about the dilemma (Discussion and Decision). If making a cooperative group decision is the actual basis for the group discussion effect, levels of subsequent individual cooperation should be higher in the Discussion and Decision scenario than the Discussion Only and No Discussion scenarios.

Hoptrow and Hulbert (2005) found that, following discussion, a group decision to cooperate occurred even when only a minority of group members advocated the cooperative choice.

Thus, initially non-cooperative group members had changed from their initial position. The implication is that the orientation towards reaching a decision leads discussion group members to process the dilemma systematically (cf., De Vries, De Dreu, Gordijn, & Schuurman, 1996) which should result in more lasting opinion change. It follows that an explicit requirement to reach a group decision should promote more lasting opinion change. Group members that enter the group as non-cooperators should leave the group as cooperators. This has important implications for persuading networks of people the utility of cooperation. To evaluate whether this happens, the present experiment examines participants' preferences for cooperation before and after the group discussion/decision phase.

An important function of a group decision is to initiate a norm of commitment. This norm could be external, for example, group members may stick with their commitment for fear of retribution. The norm could also be internal whereby group members stick with their commitment to avoid violating their own 'personal standard of conduct' (Kerr, Garst, Lewandowski, & Harris, 1997, p.1301). Kerr et al. found that discussion of a social dilemma invokes participants' internalized commitment norm. If this happens, it is likely that the commitment in past research could arise from an implicit or explicit group decision, following which participants would feel compelled to honor their commitment. If this is the case, we would expect the internal commitment norm would arise and persist more clearly following a group decision than following discussion only. We would also expect commitment to persist not only when participants continue membership of their group and also when that group has been disbanded.

Method

Participants and Design

Two hundred and seventy psychology students participated in a prisoners' dilemma game in face-to-face groups of 6 people. The experiment used a 2 (Choice: Choice 1, Choice 2) x 3 (Deliberation type: No Discussion vs. Discussion Only vs. Discussion and Decision) mixed design.

Deliberation type was a between participants factor. Participants were asked to make choices between J (cooperate) and P (don't cooperate) in a prisoners' dilemma game.

Procedure and Materials

Participants were randomly assigned to 6 person groups and asked to read along whilst listening to pre-recorded audio instructions.

Table 1 shows the payoff matrix used. In the table, J is the label participants see for the cooperative choice and P refers to the non-cooperative choice. The matrix indicates the payoff a participant receives as a function of their choice (the rows) and the distribution of preferences in the group (the columns). As shown in Table 1, if a participant chooses not to cooperate (P) and all other members choose to cooperate (J) the participant will receive 400 points and other group members will receive 260 points. To check on pre-group opinions, participants' initial personal preferences for J or P were recorded before any manipulations.

Participants earned points from both Choices 1 and 2. Choice 1 was made after the deliberation manipulation. Choice 2 was made when all participants were no longer with other group members. Before being asked to make Choice 2 participants were told either that they were making the choice as part of the *same* group as before or as part of a *different* group than before. Data analyses indicated that this manipulation had no effect and did not interact with deliberation type. This will be discussed later. Participants were informed that their choices would be anonymous and any points that they earned would be converted into school supplies at the end of the experiment.

In the *No Discussion* condition participants were given 5 minutes to write down all the reasons they could think of for selecting one choice or the other. They were asked to do this without communicating with other members of their group. In the *Discussion Only* condition participants were given 5 minutes to discuss as a group the best choice to make but they were asked to talk merely in terms of possibilities not to make a decision. In the *Discussion and Decision* condition participants were asked to discuss the best choice to make and make a group decision about how

they should behave. They were asked to indicate this decision which could be all-J (all-cooperate), all-P (all not-cooperate), or a mixed decision which was somewhere in between.

Choice 1

After the deliberation manipulation, alone and without communicating with others, participants were asked to choose between cooperate vs not-cooperate options. They were informed that these choices would contribute to their points totals. After making their choice participants were provided with anonymous feedback on their outcome. They were then asked to complete scales measuring their group identity, group cohesion and the level to which they trusted other members of their group.

Group Identity

Group identification was measured with 10-items, each measured on a 7 point scale (based on Abrams, 1998). Taking the mean of the 10 identity items and reverse coding 1 item created a measure of group identity, higher values indicate higher levels of group identity. Reliability analysis revealed a Cronbach's $\alpha = 0.90$.

Group Cohesion

Group cohesiveness was measured using 9-items, each measured on a 7 point scale developed from Hogg's definition of Group Cohesiveness (e.g. Hogg & Hardie, 1991). A measure of group cohesion was created by taking the mean of the 9 cohesion items lower values indicated higher group cohesion, reliability analysis revealed a Cronbach's $\alpha = 0.83$.

Trust

Trust was measured with one item 'I do not trust the other members of my group' on a 7 point scale from 1 'Totally Agree' to 7 'Totally Disagree'.

Choice 2

After the Choice 1 phase participants were separated from their groups and were given the points matrix again. They were asked to make a further choice. They were told that points earned from this choice would also be added to their points total and converted into school supplies.

Participants had not been informed beforehand that there would be a second choice. At the end of the study participants were debriefed and were given school supplies.

Results

Data were collected from forty five 6-person groups. Prior to the discussion manipulations there were no differences in individuals' prior cooperation rates ($M = 0.46$) between the three conditions $F(2,267) = .19, p = .83, \eta^2 = .001$. Data were analyzed at the individual level to allow comparison between Choice 1 and Choice 2. The dependent variable was the proportion of cooperative choices for each group $P(c)$.

A 2 (Choice: 1, 2) x 3 (Deliberation type: No Discussion vs. Discussion Only vs. Discussion and Decision) mixed model ANOVA was conducted on $P(c)$, with Choice as a repeated measure and Deliberation type as a between participants factor. Means within each condition are displayed in Figure 1. There was a significant main effect of Choice $F(1,263) = 35.88, p < .01, \eta^2 = .12$. In line with expectations we found a significant main effect of Deliberation type $F(2,263) = 19.67, p < .01, \eta^2 = .13$. These effects were qualified by a significant interaction between Choice and Deliberation type $F(2,263) = 6.6, p < .01, \eta^2 = .05$. Simple effects analysis revealed a significant effect of Deliberation type within Choice 1, $F(2,263) = 24.42, p < .01, \eta^2 = .16$ and within Choice 2, $F(2,263) = 8.89, p < .01, \eta^2 = .06$.

Consistent with our hypotheses and shown in Figure 1, paired comparisons on Choice 1 indicated that participants in the Discussion Only condition were significantly more cooperative than participants in the No Discussion condition $p < .01$. In turn, participants in the Discussion and Decision condition were significantly more cooperative than those in the Discussion Only condition, $p < .01$, and the No Discussion condition, $p < .01$.

On Choice 2, paired comparisons indicated that participants in the Discussion and Decision condition were significantly more cooperative than those that were in the Discussion Only condition, $p < .01$, and the No Discussion condition, $p < .01$. There was no significant difference in cooperation rates of participants in the No Discussion versus Discussion Only conditions, $p = .94$.

Group identity, group cohesion and trust were all significantly positively correlated with one another $p < .01$. A MANOVA on these 3 variables revealed a significant multivariate effect of Deliberation type $F(2,528) = 5.7, p < .01, \eta^2 = .06$. The univariate analyses revealed no significant effect of Deliberation type on Trust. However, there were significant effects on both Group Identity $F(2,265) = 5.66, p < .01, \eta^2 = .04$, and Cohesion, $F(2,265) = 17.82, p < .01, \eta^2 = .12$.

Group Identity did not differ between the Discussion and Decision and the Discussion Only conditions, $p = .62$. However, group identity was higher in Discussion and Decision than in the No Discussion condition, $p < .01$ and higher in the Discussion Only than in the No Discussion condition, $p < .01$. Group Cohesion was higher in the Discussion and Decision condition than in the Discussion Only $p < .05$, and than in the No Discussion $p < .01$ conditions. Cohesion was higher in the Discussion Only than in the No Discussion condition, $p < .01$.

According to Dawes et al. (1977) the group discussion effect might be attributable to increased identity. Given that condition had an effect on group identity and cohesion, it seemed appropriate to investigate whether the effect of Deliberation type on cooperation was attributable to group identity or group cohesion. We conducted an ANCOVA on $P(c)$, with choice as a repeated measure, Deliberation type as a between participants factor, and identity and cohesion as covariates. There were no significant effects of the covariates, and the Deliberation type by Choice interaction described previously remained significant. Therefore, there was no evidence that group identity or group cohesion independently predicted or mediated the effect of Deliberation type on cooperative choice.

Discussion

In this experiment we explicitly tested whether discussion alone, or a discussion with a group decision can be sufficient to produce the 'group discussion effect' in social dilemma research (Caldwell, 1976). We compared cooperation rates following no-discussion, discussion only, and discussion followed by a group decision. Bouas and Komorita (1996), and Orbell, van de Kragt, and Dawes (1988), suggested that the explanation for the group discussion effect lies in a consensus

building process that does not require a decision. The present experiment tested that assumption explicitly by prohibiting an explicit decision in the Discussion Only condition.

In line with previous research, the Discussion Only condition showed significantly higher levels of cooperation than the No Discussion condition, on Choice 1. However, the Discussion and Decision condition resulted in significantly higher levels of cooperative choice than the Discussion Only condition. Indeed, we note that 14 of the 15 groups made a cooperative group decision even though individuals' prior preferences indicated only a .46 proportion of cooperation. From these results we conclude that a group decision is important although not essential for increasing initial cooperative choice. However, while something in the discussion process is sufficient to promote cooperativeness, the decision process elevates cooperativeness still further.

Cohen, Wildschut, & Insko (2010), showed that the opportunity to develop a norm of trust is one mechanism explaining cooperation in communicating dyads. We found no impact of trust in our analysis of covariance. However, it is likely that trust is more difficult to develop in the larger groups of this study in comparison to dyads in Cohen et al. (2010). We also found no impact of group identity or cohesion on choice making. These findings are consistent with our argument that it is an internalized norm (Kerr et al. 1997) that is driving the consensus process, as evidenced in the Choice 2 data.

The findings for Choice 2 point to a distinctive impact of group decision. Unlike participants in the No Discussion and Discussion Only conditions, participants in the Discussion and Decision condition *remained* more cooperative individually at Choice 2. They were also significantly more cooperative than participants in both the No Discussion and the Discussion Only conditions. This demonstrates that making a group decision is highly effective in leading individuals to be cooperative and, importantly, persuading them to remain so.

Note that the effects of discussion and decision were not moderated by whether participants anticipated staying in the same group or not. Given that the effects of decision also persisted into Choice 2 these findings are consistent with the idea that decisions resulted in a true

shift in preference rather than mere compliance to an emergent group norm. This supports Kerr et al's., (1997) view that an *internalized* commitment norm (rather than fear of censure or retribution) may be the mechanism ensuring that people remain cooperative after they have committed to do so. Moreover, the present results show that this internalized commitment is stronger after a group decision than discussion only.

In conclusion, making a group decision enhances the ability of a group to *solve* a prisoner's dilemma. A plausible interpretation is that when groups are required to reach a decision they treat a social dilemma as a problem solving task, whereas when they merely discuss they may treat it as an opinion or preference task. To the extent that a dilemma is treated as a solvable problem it seems that groups are more likely to reach an optimal solution and its members are more likely to adhere to it.

This experiment has shown that the way a group deliberates about a social dilemma makes a significant difference to members' subsequent cooperativeness. Groups that discuss to make a group decision are significantly more cooperative than groups that discuss without the opportunity to decide. In addition, this increase in cooperative behavior remains relatively stable, indicating that, unlike discussion alone, making a group decision changes participants' opinions as to which is the correct choice. This finding suggests that requiring groups to discuss and then reach decisions, rather than merely discuss their views can be an effective means of generating a norm that facilitates optimal levels of cooperation.

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Table 1: Payoff Matrix, J is a Cooperative Choice and P is a Non-cooperative Choice.

Number of J&P choices in the group

You choose	0J/6P	1J/5P	2J/4P	3J/3P	4J/2P	5J/1P	6J/0P
J	no one chose J	140	170	200	230	260	290
P	200	240	280	320	360	400	no one chose P

Figure 1: Proportion of Cooperation for Choice 1 and Choice 2 by Deliberation Type

