

Reducing Intergroup Bias: The Benefits of Recategorization

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Three hundred sixty undergraduates participated in small groups in an experiment that tested 2 strategies, based on the social categorization approach, for reducing intergroup bias. Both strategies involved recategorizing members' conceptual representations of the aggregate compared with a control condition designed to maintain initial group boundaries. The recategorization treatments induced members of 2 3-person groups to conceive of both memberships as 1 6-person group or as 6 separate individuals. The findings revealed that the one-group and separate-individuals conditions, as compared with the control condition, reduced intergroup bias. Furthermore, these recategorized conditions reduced bias in different ways consistent with Brewer's (1979) analysis and Turner's (1985) self-categorization theory. Specifically, the 1-group representation reduced bias primarily by increasing the attractiveness of former out-group members, whereas the separate-individuals representation primarily decreased the attractiveness of former in-group members. Implications for the utility of these strategies are discussed.

Research on intergroup behavior, reviewed by Brewer (1979), Hogg and Abrams (1988), Messick and Mackie (1989), Stephan (1985), Tajfel (1978, 1982), Turner (1981), and Wilder (1986), indicates that categorization of people into distinct groups is sufficient to arouse intergroup bias. On the occurrence of social categorization, people favor in-group members in the allocation rewards (Tajfel, Flament, Billig, & Bundy, 1971), in their personal regard (Rabbie, 1982; Rabbie & Horwitz, 1969), and in the evaluation of the products of their labor (Ferguson & Kelley, 1964). Also, factors that further increase intergroup bias share the capacity to enhance the salience of the categorized representation (Abrams, 1985; Brewer, 1979; Deschamps & Doise, 1978; Dion, 1974; Doise, 1978; Skinner & Stephenson, 1981; Turner, 1981; Worchel, 1979). The implication of these analyses is that reducing the salience of the intergroup boundary should decrease the prevalence of in-group-out-group category-based judgments and thereby reduce intergroup bias.

Within the intergroup literature, there has been some convergence of opinion (although it is not unanimous; see Rothbart & John, 1985) that degrading the salience of the categorized representation should decrease intergroup bias. Although categorization has been the common target, various strategies have been effectively used in laboratory settings, and these strategies have yielded different residual representations of the aggregate (see Wilder, 1986). For example, individuating members of the out-group by revealing variability in their opinions (Wilder,

1978, Study 1) or having out-group members respond as individuals rather than as a group (Wilder, 1978, Studies 2 and 3) renders each member more distinctive and thus potentially blurs the prior categorization scheme. Also, personalizing interactions (Brewer & Miller, 1984; Miller, Brewer, & Edwards, 1985) similarly differentiates or dehomogenizes in-group and out-group members, but perhaps on the basis of more intimate, more personally relevant information. Criss-crossing category memberships by forming new subgroups (Brewer, Ho, Lee, & Miller, 1987; Commins & Lockwood, 1978; Deschamps & Doise, 1978; Vanbeselaere, 1987), each composed of members from former subgroups, changes the pattern of who's "in" and who's "out" and can also render the earlier categorization less salient (Brown & Turner, 1979).

In the current research, we considered the benefits of two additional strategies. Specifically, members of two groups were induced to recategorize the aggregate either as one superordinate group or as separate individuals who were not members of any particular social category (i.e., decategorization). Theoretically, a one-group representation replaces the former intergroup boundary with a single, inclusive superordinate boundary. In contrast, the separate-individuals representation reduces the salience of group membership altogether. Whereas individuation (see Wilder, 1978) differentiates or dehomogenizes out-group members, a separate-individuals representation attacks the integrity of both in-group and out-group boundaries more completely and also transforms a person's salient self-identity from *we* to *me* (cf. Turner, 1982, 1985).

The rationale for the attitude-change processes underlying these strategies is based on two related conclusions from Brewer's (1979) analysis that fit nicely with social identity theory (Tajfel & Turner, 1979; Turner, 1975), as well as with self-categorization theory (Turner, 1985; Turner, Hogg, Oakes, Reicher,

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& Wetherell, 1987). First, intergroup bias often takes the form of in-group enhancement rather than out-group devaluation. Second, the introduction of an in-group-out-group boundary brings in-group members closer to the self, whereas the distance between the self and out-group members remains relatively unchanged. Therefore, when the categorization process is reversed and members are left with a separate-individuals representation, intergroup bias should be reduced primarily because the distance between the self and former in-group members has increased, whereas the distance between the self and former out-group members has remained relatively unchanged. In contrast, when the salience of the categorized boundary is reduced but members are left with a superordinate or one-group representation, the cognitive and motivational processes that initially brought in-group members closer to the self could be redirected toward the establishment of more positive relations with the former out-group members. With a one-group representation, bias should be reduced primarily because the social distance with former out-group members has decreased and the social distance with former in-group members has remained relatively close. The expectation that closeness between the self and others is accentuated or reduced in relation to the salient level of self-categorization is perfectly in tune with Turner's (1985; see also Turner et al., 1987) more general theory of self-categorization on group behavior; in fact, the current predictions could have been derived from it. Specifically, Turner et al. (1987) hypothesized that "self-categories tend to be evaluated positively" (p. 57) and "that the attractiveness of an individual is not constant, but varies with the in-group membership" (p. 60).

The potential for the one-group representation to bring out-group members closer to the self is indicated by the intergroup literature, which also suggests that a number of benefits should now be extended to these new in-group members. First, Tajfel and Turner (1979; see also Turner, 1975) proposed that a person's need for positive self-identity (i.e., self-esteem) motivates social comparisons that positively differentiate in-group members from out-group members. Whether positive differentiation is achieved by out-group devaluation (Rosenbaum & Holtz, 1985) or by in-group enhancement (which is more usual, according to Brewer, 1979), the recategorization of former out-group members as in-group members should result in more positive attitudes toward them. Second, greater belief similarity to the self is attributed to in-group members (Brown, 1984; Brown & Abrams, 1986; Hogg & Turner, 1985; Stein, Hardyck & Smith, 1965; Wilder, 1984), and belief similarity is a powerful determinant of interpersonal attraction (Byrne, 1971). Third, in-group membership decreases psychological distance and facilitates the arousal of promotive tension, whereby a person's motivational system becomes coordinated to the needs of another (Hornstein, 1976). Indeed, prosocial behavior is offered more readily to in-group than to out-group members (Hornstein, 1976; Piliavin, Dovidio, Gaertner, & Clark, 1981), and prosocial behavior is sensitive to interpersonal attraction (Gaertner & Dovidio, 1986). Also, people are more likely to be cooperative and to exercise more personal restraint in their use of endangered common resources when they are interacting with in-group members than when interacting with others (Kramer & Brewer, 1984).

In the present study, two separate laboratory groups (of 3 persons each) were created. These groups were then provided with the opportunity for intergroup interaction under circumstances intended to manipulate members' conceptual representations of the aggregate. To vary whether members conceived of this aggregate as one group, two groups, or separate individuals, the specific circumstances for each treatment condition were designed to include a set of systematically varied features that, in concert, were expected to strongly influence members' conceptual representations of the memberships. Therefore, the aim was not to determine which specific feature(s) may have contributed most to members' representations of the aggregate. Given the possibility that one or more of these of features, which differed across the treatment conditions, may influence intergroup bias through processes unrelated to members' altered representations, more typical between-treatment analyses were supplemented by within-treatment correlational analyses. Separately, within each treatment, we assessed the relation between subjects' conceptual representations of the aggregate and their attitudes toward in-group and out-group members unnumbered by differences across the experimental treatments.

On the basis of the social categorization approach (Brewer, 1979; Hogg & Abrams, 1988; Tajfel, 1969; Tajfel & Turner, 1979; Turner, 1985), we expected that changing members' categorized representations from two groups to either recategorized representation would reduce intergroup bias. Consequently, we expected that when members of two groups were induced to conceive of themselves as either one group or as separate individuals (i.e., no groups), they would have lower degrees of bias than those encouraged to maintain the earlier two-groups representation.

Although there is no a priori reason to expect different degrees of intergroup bias between the one-group and separate-individuals conditions, there is reason to expect they would reduce bias through different processes. If the consequences of imposing a common in-group categorization involve moving in-group members closer to the self (Brewer, 1979; Turner, 1985; Turner et al., 1987), then bias in the one-group condition should be reduced primarily by increasing the attractiveness of former out-group members because of their revised group status. Alternatively, decategorization to separate individuals should move former in-group members further away from the self; therefore, bias should be reduced primarily by decreasing the attractiveness of former in-group members.

Method

Subjects

Three hundred sixty undergraduates (180 men and 180 women) enrolled in the general psychology course at the University of Delaware participated in partial fulfillment of their research readings or participation requirement. Ten groups of men and 10 groups of women, run in same-sex groups of six people per session, were assigned to each of the three treatment conditions: one group, two groups, and separate individuals. Thus, each treatment condition was composed of 20 six-person groups.

Procedure

Subgroup formation. In each session, two 3-person groups were assigned to two ostensibly different experiments located in separate areas within the laboratory complex. Although these two groups were treated identically, they were not informed of their joint participation in the experiment until just before the intergroup interaction. After being greeted by one of two experimenters, members of each group were assigned one of three different color-coded identity tags reserved for each group (purple, yellow, or brown; or green, orange, or red) as they were led to their designated laboratory. As they entered, the experimenter asked the participants to attach these identification tags to their clothing and to sit according to their color-coded identity, by matching their tag with a like-colored placemat on the group's table. Each room was also equipped with a visible video camera and microphone. Tape-recorded instructions explained that the study involved the examination of group decision-making processes and that we would be recording their group interaction as they attempted to reach a consensus concerning the winter survival problem (Johnson & Johnson, 1975). This problem is engaging and requires participants to imagine that their plane has crashed in the woods of northern Minnesota in mid-January and to rank-order 10 items salvaged from the plane (a gun, newspaper, can of shortening, etc.) in terms of their importance for survival. To further involve participants in the problem, a replica of each item was available for examination in the center of the table. First, each person was given 2 min to solve the problem individually. Each group then created a name for itself and was instructed to record that name on a consensus solution form placed in the center of the table, as well as on all other forms used throughout the study. We assumed that having each group create its own identifying name would contribute to the members' group awareness (see Deutsch, 1973). Each 3-person group then discussed the problem (for a maximum of 5 min) and recorded a single consensus ranking of items. Following consensus, participants made a personal record of their group's decision.

At this point, the tape-recorded instructions explained that the participants would soon discuss the problem again; however, this time they would discuss it with members of another group who had also been working on the winter survival problem, and monetary rewards for the development of the most effective solutions would be available. These instructions, as well as the circumstances of this intergroup interaction (scheduled for 10 min), were manipulated systematically so as to differentially affect members' conceptual representations of the aggregate as one group, two groups, or separate individuals (see Campbell, 1958; Zander, Stotland, & Wolfe, 1960).

Experimental manipulations. One feature previously shown to influence members' representation of the aggregate involves the manner in which members of each group were positioned during the interaction (Gaertner & Dovidio, 1986; Ryen, 1974). In the one-group condition, members of each group were ushered into a larger room and seated alternately (i.e., ABABAB; facilitated by the use of color-coded placemats corresponding to subjects' color identities) around a hexagonally shaped table formed by pushing together two trapezoidal tables. Each person was thus seated between 2 members of the other group (integrated seating). In the two-groups condition, the members of each subgroup were positioned at adjacent locations on either side of the seam in the hexagonally shaped table (i.e., AAABBB; segregated seating). Thus, seating position (i.e., integrated or segregated) varied the presence or absence of a physical boundary between the two groups. In each condition, one set of the items "salvaged from the plane" was positioned along the seam in the center of the table. In the separate-individuals condition, each member was separated from the others immediately following the initial subgroup interaction and led to a separate cubicle for a short period, during which he or she composed a second personal solution to the winter survival problem. After working alone, all 6 participants were sig-

naled simultaneously to leave their cubicles, which opened into the larger area that now had six separate square tables positioned around the room's perimeter (25 × 22 ft). Each table was color coded and positioned so that members from each group were arranged in an alternating pattern with their backs toward the center of the room. Also, each participant had available his or her own set of items salvaged from the plane.

Each participant's formal identity during the interaction was also varied systematically. In the one-group condition, the 6 participants were asked to create a new single name for themselves that did not simply combine the earlier subgroup names. Those in the two-groups condition maintained their previous group names throughout the interaction. In the separate-individuals condition, each person was asked to create a nickname for him- or herself that was to be used in place of the former group names on all subsequent experimental forms. Just before the interaction phase, the experimenter began the video recording of the interaction by announcing the name(s) of the participants. In the one-group condition, the experimenter stated,

This will be session number _____ in which the _____ [name of 3-person Group A] has been merged with the _____ [name of 3-person Group B] and will be known as the _____ [name decided on by all 6-people].

In the two-groups and separate-individuals conditions, the experimenter announced either the 3-person group names or the individual nicknames, without mention of a merger.

We also varied the nature and purpose of the group interaction across the three treatment conditions. In the one-group condition, members freely discussed the survival problem with the purpose of arriving at the single best consensus solution. In the two-groups condition, members of each group described to each other only the rationale for their earlier 3-person group solutions. In the separate-individuals condition, each participant in turn described his or her initial personal solution to the 5 other participants. In this last condition, the video camera, which was now positioned in the center of the room, was aimed exclusively at the person who was speaking. Following the interaction, participants in the two-groups and separate-individuals conditions reconsidered their earlier solutions and prepared a final 3-person-group or personal solution, respectively.

In addition, we varied the nature of the interdependence among the participants across the experimental treatments. Instructions specific to each condition explained that all participants had the opportunity to qualify to win \$10 in a lottery to be conducted at the end of the semester. Qualification in each condition was dependent on the relative effectiveness of their 6-person group, 3-person group, or personal solutions, respectively. To qualify for the lottery in the one-group condition, the group's consensus solution had to be more effective than that of another 6-person group supposedly meeting concurrently in another building on campus. Hence, both 3-person groups were cooperatively interdependent with respect to one another. Qualification in the two-groups condition depended on which of the two currently participating 3-person groups developed the more effective final solution. For those in separate-individuals condition, qualification was awarded to the person whose final personal solution was most effective compared with those of the other 5 participants. Furthermore, in the one-group condition members received feedback that their solution was more effective than that of the other group; in the other conditions, feedback was only provided just before subjects left the laboratory at the conclusion of the study. The timing of this feedback was intended to further unify the members of the one-group condition and to maintain the competition and thereby the salience of the two-groups and separate-individuals representations, respectively, in the other conditions.

Measures. Following the intergroup interactions, the participants

Table 1
Members' Representations of the Aggregate

	Treatment condition		
	One group (20 groups)	Two groups (20 groups)	Separate individuals (20 groups)
Mean percentage of members selecting			
One group	71.67%	18.88%	15.83%
Two groups	21.67%	80.00%	16.67%
Separate individuals	6.67%	1.67%	67.50%
The extent to which it felt like (1-7)			
One group	5.37	3.72	2.95
Two groups	2.21	4.35	2.92
Separate individuals	1.94	1.77	4.94

were given a postexperimental questionnaire containing items that asked (a) which participant they would elect as leader of these six survivors if the survival problem were real rather than hypothetical; (b) their conceptual representations of the aggregate ("During the interaction did it [the aggregate] feel like one group, two groups, or separate individuals?"), as well as to what extent (on a scale ranging from 1, *not at all* to 7, *very much*) the aggregate felt like each of these representations; (c) their evaluative ratings (1-7) of each participant (except for themselves), which involved how much they liked each of the others and their ratings of each person's honesty, cooperativeness, and value to the discussion (we calculated in-group and out-group scores separately for each subject on each rating); and (d) their 1-7 ratings of the extent to which the interaction was characterized as cooperative, friendly, quarrelsome, close, pleasant, trusting, frustrating, successful, honest, and useless.

Results

Conceptual Representations of the Aggregate

The intent of the experimental manipulations was to strongly influence subjects' conceptual representations of the aggregate. When asked to select the representation (one group, two groups, or separate individuals) that best characterized their impression of the aggregate during the interaction, sizable percentages of subjects in each treatment selected the representation appropriate to their treatment condition. Because of the possible interdependence of ratings within each 6-person group, we used the group as the unit of analysis throughout ($N = 60$), unless otherwise indicated. The average percentages of subjects in each group selecting the "appropriate" representation in the one-group, two-groups, and separate-individuals conditions (see Table 1) are 71.67%, 80.00%, and 67.5%, respectively. Between-treatment analyses indicated that, relative to the other treatment conditions, greater percentages of subjects in the one-group condition selected the one-group representation, $F(2, 54) = 51.63, p < .001$. Similarly, greater percentages of subjects in the two-groups and separate-individuals conditions most frequently, relative to each of the other treatments, selected the representation appropriate to their treatment conditions, $F_s(2, 54) = 67.32$ and 110.41 , respectively, $p < .001$. In each case, there were no main effects or interactions involving subjects' sex.

In addition, subjects' ratings (1-7) of the extent to which each of these representations characterized their impressions of the aggregate (see Table 1) offer further support for the effectiveness of the manipulation. A $3 \times 2 \times 3$ (Treatment \times Sex \times Representation Measure) repeated measures multivariate analysis of variance (MANOVA) involving the mean rating (for each 6-person group) on each measure of these three representations revealed a reliable Treatment \times Measures interaction effect, multivariate $F(4, 106) = 67.41, p < .001$.¹ Overall, the pattern of these means (see Table 1), both between and within treatments, supports the efficacy of the manipulation of subjects' representations of the aggregate.

Levels of Intergroup Bias

Evaluative ratings. The primary measures of intergroup bias were subjects' ratings (1-7) of liking and how cooperative, honest, and valuable each original in-group and out-group member was during the interaction (see Table 2). We performed a 3 (treatment) $\times 2$ (sex) $\times 2$ (in-group and out-group) MANOVA, with repeated measures on the in-group-out-group variable, on the four evaluative ratings. In this overall analysis, main effects for treatment were obtained, multivariate $F(8, 106) = 4.23, p < .001$, such that evaluative ratings overall were highest in the one-group condition and lowest in the separate-individuals condition. Also, there was a main effect for group, multivariate $F(4, 54) = 22.79, p < .001$; in-group members received more favorable evaluations than did out-group members. There were no main effects or interactions involving subjects' sex; consequently, we eliminated this variable from further analyses.

The predicted Treatment \times Group (In-group-Out-group) interaction supports the categorization framework, multivariate $F(8, 106) = 2.62, p < .012$. Specifically, intergroup bias varied across the treatment conditions. Figure 1 displays the amount of bias (i.e., the difference between in-group and out-group ratings summed across each of the evaluative measures; see Table 1). As expected, the one-group and separate-individuals conditions each appear to have lower degrees of bias than the two-groups condition. Planned comparisons (described in the following paragraph) using repeated measures MANOVAs that involved the in-group and out-group ratings support these observations.

Because the central hypotheses concerned changes in intergroup bias as a function of the specific residual representation, planned comparisons were performed comparing the two-groups condition first to the one-group condition and then to the separate-individuals condition. The planned comparison involving a 2 (one group vs. two groups) $\times 2$ (in-group vs. out-group) repeated measures MANOVA performed on the evaluative ratings obtained an interaction, multivariate $F(4, 35) = 3.99, p < .01$, that supported the prediction that the difference between in-group and out-group ratings would be lower in the one-group condition than in the two-groups condition. A similar comparison involving the separate-individuals and two-

¹ All multivariate tests were based on Wilk's criterion. Tests based on Pillais and Hotellings criteria yielded the same results.

Table 2
Evaluative Ratings of In-Group and Out-Group Members

Rating and group member	Treatment conditions		
	One group (20 groups)	Two groups (20 groups)	Separate individuals (20 groups)
Like			
In-group	5.56	5.59	5.03
Out-group	5.31	4.90	4.59
Honest			
In-group	6.04	6.13	5.78
Out-group	5.98	5.76	5.71
Cooperative			
In-group	5.80	6.00	5.51
Out-group	5.68	5.61	5.28
Valuable			
In-group	5.45	5.46	5.24
Out-group	5.20	4.99	4.91
Average ^a			
In-group	5.71	5.80	5.39
Out-group	5.54	5.31	5.12

^a Average of like, honest, cooperative, and valuable.

groups conditions also obtained the reliable interaction between treatment conditions and the in-group-out-group ratings, multivariate $F(4, 35) = 2.60, p < .05$. In addition, this latter analysis revealed a reliable main effect for treatment, multivariate $F(4, 35) = 3.52, p < .016$, whereby the evaluative ratings overall were less favorable in the separate-individuals condition than in the two-groups condition. An additional analysis involving a 2 (one group vs. separate individuals) \times 2 (in-group vs. out-group) comparison suggests that the apparent difference in bias between the one-group and separate-individuals conditions (see Figure 1) was not reliable, multivariate $F(4, 35) = 0.718, p < .59$. However, this analysis did reveal a main effect for treatment, multivariate $F(4, 35) = 11.31, p < .001$, indicating that the evaluative ratings, overall, were higher in the one-group condition than in the separate-individuals condition (see Table 2). Additional a priori comparisons (described later) bear favorably on the idea that these recategorized treatment conditions reduce intergroup bias through different processes.

Processes for reducing bias. Specifically, we proposed that bias would be reduced in the one-group condition largely because the attractiveness of former out-group members would be enhanced. In the separate-individuals condition, we expected reduced bias primarily because the attractiveness of former in-group members would be diminished. Converging support for these predictions was suggested first by between-treatment analyses using the two-groups condition as a baseline for the assessment of the effects of the recategorized conditions, and second by correlational analyses performed separately within each treatment condition.

We examined the process by which the one-group representation reduced bias by using two multivariate planned comparisons. The first analysis, a follow-up on the significant Treatment (One Group vs. Two Groups) \times In-group-Out-group interaction, contrasted the one-group and two-groups conditions on

the evaluative ratings of in-group members; the second analysis contrasted these treatments on the ratings of out-group members. First, there was no reliable difference regarding the evaluations of in-group members, multivariate $F(4, 35) = 1.96, p < .122$; the average in-group evaluations (presented only to illustrate the multivariate comparisons; see Table 2) across the four ratings in the one-group and two-groups conditions were 5.71 and 5.80, respectively. Second, the extent to which out-group members were evaluated more favorably in the one-group condition than in the two-groups condition was reliable, multivariate $F(4, 35) = 2.75, p < .043$; the average out-group evaluations for the one-group and two-groups conditions were 5.54 and 5.31, respectively. The aforementioned Treatment (One Group vs. Two Groups) \times In-group-Out-group interaction, multivariate $F(4, 35) = 3.99, p < .01$, not only reveals a difference in bias, but given the pattern of the ratings, also indicates that the difference between the one-group and two-groups conditions for out-group members is different than that for in-group members. These results support the idea that the induction of a one-group representation would reduce bias primarily by increasing the attractiveness of former out-group members.

When similar comparisons involved the separate-individuals and the two-groups conditions, in-group members were evaluated less favorably among those in the separate-individuals condition (average = 5.39) relative to those in the two-groups condition (average = 5.80), multivariate $F(4, 35) = 3.44, p < .018$. Out-group members, however, were also evaluated less favorably in the separate-individuals condition (average = 5.12) than in the two-groups condition (average = 5.31), multivariate $F(4, 35) = 2.95, p < .03$. Although the reliable difference for out-group members was unexpected, the reported Treatment (Separate Individuals vs. Two Groups) \times In-group-Out-group interaction, multivariate $F(4, 35) = 2.60, p < .05$, given the pattern of the findings, indicates that the decreased attraction for in-group members was greater than the decrement for out-group members. Therefore, the pattern of these findings supports the prediction that among subjects in the separate-individuals condition bias would be reduced primarily by reducing attraction toward former in-group members.

The previous between-treatment analyses support the recategorization framework for reducing intergroup bias as well as the proposed processes by which reduced bias would be achieved within the one-group and separate-individuals conditions. Additional within-treatment correlational analyses between subjects' ratings of the different possible representations and their average in-group and out-group ratings corroborate the between-treatment findings. We should note that statistically it is possible for individual-level and group-level correlational analyses to yield different patterns of relations. For example, at the individual level two variables could be negatively correlated within each 6-person group; however, if the group means for both variables are systematically higher for some groups than for others, the group-level analysis would indicate a positive correlation. In the current study, we hypothesized that a person's specific conceptual representation of the aggregate influences his or her evaluation of in-group and out-group members. Therefore, the individual-level analysis controlling for the mean of each person's 6-member group (by subtracting these means

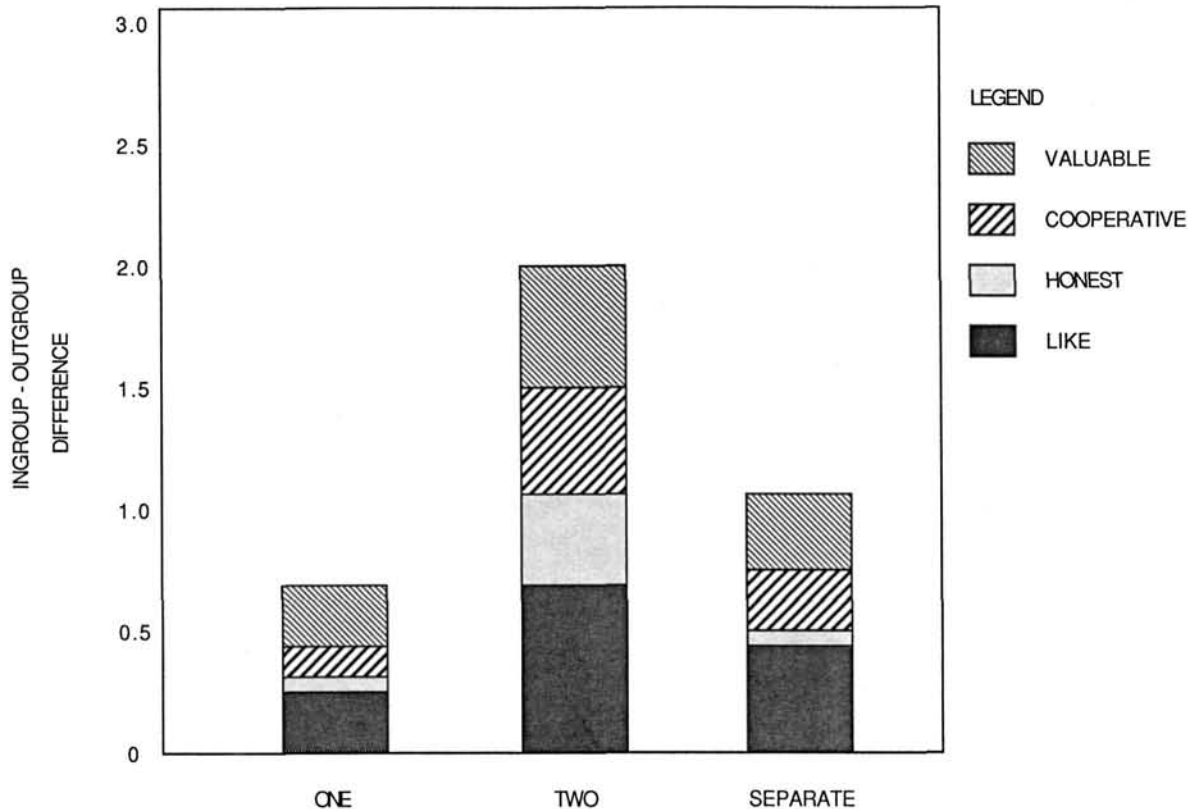


Figure 1. Levels of intergroup bias among one-group, two-groups, and separate-individual conditions.

from each subject's representation and evaluation ratings) seems intuitively to be the most direct test of the hypothesized effects of a subject's conceptual representation. Although this individual-level analysis may not completely remove the potential dependency among the participants and also possibly overestimates the degrees of freedom, it is sensitive to the variability within each 6-person group that would otherwise be sacrificed with a group-level analysis. In any event, both analyses were conducted, but the primary focus is on the individual-level correlations.

Examination of these correlations separately within each treatment (see Table 3, one-tailed tests, $N_s = 120$) reveals that the intended representation for each treatment condition (in boldface) correlates with the degree of bias (i.e., the difference between in-group and out-group members), as well as with the separate indexes for in-group and out-group members in a manner supporting the hypotheses. Specifically, within the one-group condition only, the greater the extent to which the aggregate felt like one group, the lower the degree of bias ($r = -.18$, $p < .025$) and the higher the evaluation of out-group members ($r = .25$, $p < .01$), whereas the correlation with in-group ratings ($r = .11$) was unreliable. Within the separate-individuals condition, the more the aggregate felt like separate individuals, the lower the degree of bias ($r = -.24$, $p < .01$) and the lower the evaluation of former in-group members ($r = -.25$, $p < .01$),

whereas there was no reliable correlation with the ratings of out-group members ($r = -.08$).²

Voting for a Leader

In addition to the evaluative ratings, subjects were asked to specify which of the 6 participants they would elect as leader if the winter survival problem were real rather than hypothetical. Specifically, the dependent measure was the percentage of sub-

² Similar within-treatment analyses at the group level ($N = 20$ groups per condition) revealed a pattern of correlations similar to the individual-level analyses (see Table 3), except for the separate-individuals condition in which none of the correlations were significant. Specifically within the one-group condition, the greater the extent to which the aggregate felt like one group, the lower the degree of bias ($r = -.39$, $p < .05$) and the higher the evaluation of out-group members ($r = .43$, $p < .03$), whereas the correlation with in-group ratings ($r = .22$) was unreliable. Within the two-groups condition, the more the aggregate felt like two groups, the greater the degree of bias ($r = .46$, $p < .02$) and the lower the evaluations of out-group members ($r = -.35$, $p = .067$), whereas the relation to in-group members did not approach statistical reliability ($r = .003$). In the separate-individuals condition, the extent to which the aggregate felt like separate individuals did not correlate significantly with the degree of bias ($r = -.06$) with the evaluation of in-group members ($r = -.07$) or with out-group members ($r = -.02$).

Table 3
Within-Treatment Correlational Analyses Between Ratings of Each Representation and the Average of the Four Evaluative Ratings for In-Group and Out-Group Members (Individual Level of Analysis Controlling for the Mean of Each Person's Six-Person Group)

Condition	In-group-out-group (bias)	In-group evaluation	Out-group evaluation
One group (<i>N</i> = 120)			
One group	-.18**	.11	.25***
Two groups	.07	-.12	-.18**
Separate individuals	-.06	-.15*	-.09
Two groups (<i>N</i> = 120)			
One group	-.22***	.03	.18**
Two groups	.20**	.01	-.18**
Separate individuals	-.04	-.18**	-.14
Separate individuals (<i>N</i> = 120)			
One group	-.11	.10	.21***
Two groups	.34***	-.08	-.35***
Separate individuals (1-7)	-.24***	-.25***	-.08

Note. The intended representation for each treatment appears in bold-face.

* $p < .05$, one-tailed. ** $p < .025$, one-tailed. *** $p < .01$, one-tailed.

jects within each 6-person group who voted for an in-group member as leader. For this measure, of course, the percentage of subjects who voted for an out-group is its complement. A 3×2 (Treatment \times Sex) analysis of variance yielded a reliable main effect for treatment, $F(2, 54) = 6.84, p < .002$. The mean percentages of in-group voting (which would include a vote for oneself) by the one-group, two-groups, and separate-individuals conditions were 44%, 62%, and 65%, respectively.

Given the unexpectedly high rate of biased voting within the separate-individuals condition, in additional analyses we examined the possibility that these subjects may have more frequently voted for themselves and that this occurrence contributed to the unexpectedly high level of biased voting within the separate-individuals condition. Indeed, the extent to which participants would have elected themselves as leader increased from the one-group (9%) to two-groups (17%) to separate-individuals (25.6%) conditions, $\chi^2(2, N = 355) = 10.85, p < .001$. However, when subjects who voted for themselves are eliminated (and, therefore, bias is reflected when in-group voting exceeds 40%), both those in the separate-individuals (54%) and the two-groups (53%) conditions each continue to have higher levels of bias than those in the one-group (37%) condition, $F(1, 36) = 5.60, p < .02$, and $F(1, 36) = 7.32, p < .01$, respectively.

Ratings of the Interaction

We also assessed subjects' impressions of the interaction by using an index composed of their 1-7 ratings of the extent to which the interaction was characterized as cooperative, friendly, quarrelsome, close, pleasant, trusting, frustrating, successful, honest, and useless. Cronbach's alpha was .91 for the means of each 6-person group across the 10 different response scales (.82

for individuals). A 3×2 (Treatment \times Sex) MANOVA involving these ratings revealed a main effect for treatment, multivariate $F(20, 90) = 3.42, p < .001$, and subsequent comparisons indicated that the interaction was rated less favorably ($M = 4.99$) by those in the separate-individuals condition relative to those in the one-group condition ($M = 5.67$), multivariate $F(10, 29) = 5.56, p < .001$, and also relative to those in the two-groups condition ($M = 5.54$) multivariate $F(10, 29) = 3.75, p < .003$. Furthermore, there was no difference between the one-group and two-groups conditions, multivariate $F(10, 29) = 1.47, p < .20$.

Discussion

Our findings support the social categorization framework for understanding intergroup bias (Brewer, 1979; Tajfel, 1969; Turner, 1981; Turner et al., 1987). Members of two groups who maintained their original two-group categorization had greater levels of bias than did members whose representations were altered by the recategorization treatment conditions. Between- and within-treatment analyses revealed that the one-group and separate-individuals representations were each associated with reduced bias and that these recategorized representations each had different consequences on attitudes toward former in-group and out-group members. Specifically, the one-group representation reduced bias primarily by increasing the attractiveness of former out-group members, whereas the separate-individuals representation primarily decreased the attractiveness of former in-group members. In each case, attitudes toward former in-group and out-group members became more equivalent. In addition, it is worth noting that with a one-group representation subjects' attraction toward all participants was considerably higher than with a separate-individuals representation. Consequently, a one-group representation would perhaps be more conducive to the development of more intimate, personalized future interactions relative to a separate-individuals representation. These findings were complemented by the ratings of the intergroup interaction. In the one-group condition, the interaction was regarded as more friendly, cooperative, trusting, close, and so forth than it was in the separate-individuals condition. Therefore, whereas complete decategorization reduces intergroup bias, the various recategorization strategies may have different implications for the pattern of behavior likely to develop among the former in-group and out-group members.

The failure of the separate-individuals representation to be associated with reduced in-group bias when subjects were voting for leader was unexpected but was perhaps due to subjects in this condition not having the opportunity to observe former out-group members behave in a group context. Therefore, subjects in the separate-individuals condition may have been less capable of judging how well former out-group members (relative to former in-group members) would coordinate, initiate, or offer social support to others. Consequently, they may have felt more confident voting for former in-group members to be leader. Alternatively, these subjects may have anticipated that leaders might favor former in-group members, and therefore they voted in a manner to ensure their self-interest.

Although the experimental treatments strongly influenced

subjects' representations, the treatments were compound manipulations that differed systematically on many dimensions. For example, the treatments varied the timing of the feedback about winning and whether the interactions and goal relations among the 6 participants were cooperative or competitive. These particular differences raise a question regarding the extent to which the major effects were mediated by processes implicit in reinforcement theory (see Lott & Lott, 1965) and Sherif's functional relations theory rather than by the type of social categorization. For example, on the basis of reinforcement theory, good feelings associated with successful feedback, which was provided prior to the evaluative ratings in only the one-group condition, could explain these subjects' more favorable evaluations of out-group members. Also on the basis of processes implicit in functional relations theory, the increased attraction toward former out-group members in the one-group condition and the decreased attraction for former in-group members in the separate-individuals condition could be explained by differences across conditions in the apparent helpfulness (i.e., cooperativeness) of these participants during subjects' efforts to obtain a desired goal.

Nevertheless, we believe for several reasons that intergroup bias was reduced independently and largely by changes in subjects' categorized representations. For example, if successful feedback in the one-group condition directly increased positive attitudes toward out-group members, we should have observed the development of more positive attitudes toward former in-group members as well. Although it is plausible that cooperation and competition between in-group and out-group members directly influence intergroup attitudes, we believe that these types of goal relations and interactions affect intergroup attitudes primarily by altering the salience of relevant categorized representations (see Doise, 1978; Turner, 1981; Worchel, 1979). Furthermore, evidence from the intergroup literature indicates that intergroup attitudes do not turn exclusively on the cooperative and competitive nature of the goal relations or interactions between groups *per se*. Rather, intergroup bias seems to be determined largely by the extent to which the situation overall emphasizes the salience of the categorized representation (Brewer, 1979; Turner, 1981; Worchel, 1979).

Although the functional relations position holds that "it is not factually true [that] prejudice against other groups . . . accompan[ies] the formation of an ingroup" (Sherif, 1966, p. 22), evidence indicates that intergroup bias does occur with categorization *per se*, and in the complete absence of explicit intergroup competition (Billig & Tajfel, 1973; Doise, 1969, cited in Turner, 1981; Ferguson & Kelley, 1964; Kahn & Ryen, 1972; Rabbie, 1982; Rabbie & Horwitz, 1969; Rabbie & Wilkens, 1971; Tajfel et al., 1971). Furthermore, whereas intergroup bias is often lower under cooperative conditions than under competitive conditions, it is not completely absent under cooperative circumstances (Kahn & Ryen, 1972; Rabbie & de Brey, 1971; Worchel, Axsom, Ferris, Samaha, & Schweitzer, 1978). Sometimes cooperative relations produce as much bias as competitive ones (Brewer & Silver, 1978; Doise, Csepli, Dann, Gouge, Larsen, & Ostell, 1971, cited in Turner, 1981; Rabbie & de Brey, 1971). In addition to whether the relations were cooperative or competitive, the degree of intergroup bias observed across these

studies was largely dependent on factors that were clearly capable of influencing the salience of the categorized representation. Rabbie and de Brey (1971), for example, reported greater intergroup bias when intragroup interaction preceded either competitive or cooperative intergroup interactions. Also, according to Worchel et al. (1978), groups wearing different colored laboratory coats (i.e., Group A = red; Group B = white) during intergroup cooperative interaction had higher levels of bias compared with groups dressed in same-colored coats. Thus, whereas cooperative goal relations and interactions often contribute to reducing intergroup bias, they cannot fully account for variations in intergroup attitudes.

In research using paradigms similar to that used in this study, members' representations influenced intergroup attitudes independent of intergroup cooperative interaction. In an earlier study (Gaertner & Dovidio, 1986; see also Ryen, 1974), only the seating position (i.e., integrated or segregated) was varied while the two groups cooperatively interacted and reached consensus to the winter survival problem. In the absence of the multiplex of features characterizing the current study, subjects in the integrated condition relative to the segregated condition felt reliably more like one group, demonstrated reliably less in-group bias in their leadership votes, and tended to have lower degrees of bias toward liking in-group members more than out-group members. Thus, without varying cooperative interaction, an additional factor that influenced the salience of the categorization also appeared to regulate the degree of intergroup bias. Furthermore, another study (Gaertner, Mann, Murrell, Pomare, & Dovidio, 1989) again varied a similar multiplex of features intended to influence members' representations as one group or two groups while members were face-to-face with each other, but without interaction or cooperative-competitive goal relations. Supporting this study's findings, subjects in the one-group condition relative to those in the two-groups condition felt reliably more like one group and had reliably lower bias in their evaluations of in-group and out-group members.

Overall, then, the literature suggests that whereas cooperation and competition *per se* may influence intergroup bias, the salience of relevant categorizations is also an important factor. Sherif and Sherif (1969, pp. 268-269) recognized the capacity of intergroup cooperation to facilitate the development of a common superordinate entity, but this was conceived to be the ultimate rather than the initial consequence of cooperative activity. In view of the research we have cited, the within-treatment correlations in the current study (see Table 3), and the strong potential for intergroup cooperative and competitive interactions to influence the salience of members' categorized representations, we contend that the systematic variation in members' categorized representations contributed directly to the patterns of intergroup bias that we obtained in this study.

The strength of the experimental manipulations may arouse concern that our findings resulted primarily from demand characteristics. However, subjects' postexperimental self-reports of their hypotheses about the study's purposes revealed that no subject expressed a hypothesis that approximated the goals of the study. The fact that subjects were in only one condition very likely obscured the specific purpose of the research. Furthermore, the different patterns by which bias was reduced were

very likely too subtle for most subjects to anticipate (e.g., the decreased attraction toward former in-group members within the separate-individuals condition) and therefore support the validity of the experimental results.

The different processes by which the one-group and separate-individuals representations reduced bias support the Brewer (1979) and Turner (1985; see also Turner et al., 1987) analyses regarding the consequences of social categorization. Apparently, in-group formation does not necessarily push out-group members or undifferentiated others further away from oneself; rather, it brings in-group members closer. Indeed, whereas some encounters would certainly arouse tendencies to denigrate out-group members (see Rosenbaum & Holtz, 1985), the fundamental dynamics of intergroup discrimination do not rely on the development of hostile, unfavorable images of out-group members. This perspective is important because it acknowledges the potential benefits of in-group formation (see Kramer & Brewer, 1984) while recognizing that it may be a fundamental instigator of intergroup conflict. The present research suggests that in-group categorization may also be used productively to bring former out-group members closer to the self and thereby reduce bias. This perspective differs from strategies that recommend that if bias is to be eliminated people must first perceive members of out-groups as individuals rather than as group members. We do not fundamentally disagree with the other perspectives, but rather believe that the one-group representation may offer an alternative to these more individuated, personalized perceptions while capitalizing on the human proclivity for categorizing the people and objects of our experience (Rosch, 1975).

In-group categorization may mobilize further changes in motivational and cognitive processes that mediate behavior toward other people. Although initially the induction of a common in-group representation may only peripherally or heuristically influence attitudes toward former out-group members, this newly formed positive bias may facilitate the occurrence of interactions that permit the development of more elaborated, individuated, and personalized impressions of former out-group members. These nonstereotypic impressions could then have important consequences for the pattern of future interpersonal and intergroup behavior. For example, Slavin and Madden's (1979) review of school practices that improve interracial attitudes revealed that participating on interracial sports teams and cooperative learning teams were the activities most related to students having positive interracial attitudes. Similarly, the "jigsaw" classroom method of reducing intergroup bias (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978) may also capitalize on the benefits of an enhanced salience of a common group or team membership. From this perspective, the pursuit of superordinate goals in Sherif's robbers cave study (Sherif, Harvey, White, Hood, & Sherif, 1954) may have reduced intergroup bias because cooperation toward these goals induced the conflicting groups of summer campers to conceive of themselves as one group rather than as two groups.

We should note that the induction of a common or superordinate group representation may not necessarily require subgroups to forsake their earlier categorizations entirely. In some contexts this would be especially difficult or undesirable (Jones,

1986). Rather, this strategy may be effective even when both categorizations are salient simultaneously or alternately. For example, we may frequently categorize members of our family as *parents* and *children* without losing sight of our superordinate connection. Also, whereas cooperative intergroup interaction reduces bias, this activity may be at least partially instrumental, because it induces participants to conceive of themselves as one group rather than as two groups. This perspective may be particularly useful in applied settings because cooperation among conflicting groups is often difficult to implement (Worchel, 1979). However, if other factors can induce the perception of a common in-group membership, these factors could reduce bias and also potentially increase the likelihood of cooperative intergroup behavior. For example, Kramer and Brewer (1984; see also Dawes, van de Kragt, & Orbell, 1987) have shown that common in-group membership increases cooperative activity among individuals in their use of an endangered common resource. Therefore, the induction of a common in-group membership can potentially initiate a recurring sequence of perceptions and actions that have increasingly positive consequences for reducing intergroup bias and conflict. In applied settings, we conceive of the strategy of increasing the salience of a superordinate or common group membership as only one of a variety of strategies to reduce intergroup conflict, but as one that has the potential to harness some of the cognitive and motivational processes that contribute to the development of intergroup bias and redirect them toward the establishment of more constructive intergroup relations.

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