Ingroup bias in the minimal group paradigm shown by three-person groups with high or low state self-esteem

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Abstract

From social identity theory a negative relation between self-esteem and ingroup bias can be deducted. Much research has been done to test this proposition and largely failed to confirm this relation. Unlike many existing studies, we conducted an experiment in which (a) self-esteem is not conceived as a trait entity but much more situation-specific, (b) the self-esteem manipulation is not relative to the outgroup, and (c) the measure of intergroup differentiation is unrelated to the self-esteem manipulation. We categorised our participants into two arbitrary minimal groups (Klee or Kandinsky fans) and afterwards formed homogeneous three-person groups (all persons were either Klee or Kandinsky fans). We manipulated the state self-esteem of these real groups by giving them positive or negative feedback concerning their performance in a problem-solving task. Afterwards, all groups distributed money to ingroup and outgroup members via Tajfel distribution matrices. Low state self-esteem groups were found to exhibit stronger ingroup bias than high state self-esteem groups overall, although the variability of intergroup discrimination was larger in the low state self-esteem groups, pointing to more heterogeneous reactions to low state self-esteem. Copyright © 2002 John Wiley & Sons, Ltd.

Research with the so-called minimal group paradigm has shown that people who are categorised into groups according to some trivial criterion favour their own ‘minimal’ group on a subsequent resource allocation task (Tajfel, Billig, Bundy, & Flament, 1971) or rate their own group more positively along evaluative dimensions (see reviews by Brewer, 1979; Mullen, Brown, & Smith, 1992; Mummendey, 1995). This tendency to allocate more resources to the ingroup or to evaluate the ingroup more positively in relation to other groups is termed ingroup bias. According to social identity theory (Tajfel & Turner, 1979, 1986), the motive underlying this phenomenon is people’s desire to achieve a positively distinct social identity, or, more generally speaking, positive self-esteem. This self-esteem hypothesis entails two corollaries (Abrams & Hogg, 1988): (a) ingroup bias should lead to increased self-esteem and (b) low or threatened self-esteem should lead to more ingroup bias. We will focus here exclusively on the second corollary. Research relevant to this proposition has recently been meta-analysed by Aberson, Healy, and Romero (2000). These authors found, contrary to the social identity expectation, a positive relation between self-esteem and ingroup bias: Individuals with high self-esteem showed more bias than those with low self-esteem. In another meta-analysis, Mullen et al.

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(1992) found that status (which is presumably positively associated with self-esteem) was negatively related to ingroup bias for real groups, consistent with social identity theory, whereas a positive relation obtained for laboratory-induced (e.g. through performance feedback) status. While these findings most probably adequately summarise the studies included in the meta-analyses, there are reasons to question the generality of the obtained relations between self-esteem and ingroup bias:

(1) In most relevant studies, self-esteem—whether on the individual (e.g. Rosenberg, 1965) or on the social/collective level (e.g. Luhtanen & Crocker, 1992)—is conceived as a relatively stable, enduring, general, trait-like entity. In contrast, self-esteem as discussed within the context of social identity theory (cf. Abrams & Hogg, 1988; Hogg & Sunderland, 1991; Long & Spears, 1997) is much more situation-specific in that it is tied to a particular, salient social identity. Also, the positivity of self-esteem derived from this identity may vary according to available comparison groups or the success or failure of one’s own group. Thus, self-esteem as conceived in social identity theory has more state-like properties, and a reasonable question is therefore whether relations between trait self-esteem and ingroup bias, like those found in the meta-analyses discussed above, will generalise to state self-esteem.

(2) Part of the positive relation between status and ingroup bias for laboratory groups found particularly in Mullen et al.’s (1992) meta-analysis may stem from the fact that sometimes the experimental manipulation of status (or self-esteem) and the subsequent measurement of intergroup differentiation is made on the same underlying evaluative dimension. Often, in order to manipulate self-esteem, participants are told that their ingroup has performed better (or worse) than an outgroup. Afterwards, they are asked to rate, say, the competence of both groups. Finding a positive relation between self-esteem and ingroup bias in such a case implies hardly more than that the participant has understood the performance feedback. In fact, Brewer (1979) had already observed that ingroup bias is the stronger the more task-relevant the evaluation dimension is, and there are some other authors who have argued that low status participants in particular may not exhibit ingroup bias on status-relevant evaluation dimensions because this would conflict with the established status differential (see Reichl, 1997, for a review). Since only studies with group evaluations were included in Mullen et al.’s (1992) meta-analysis, it is not clear to what extent their results will generalise to cases in which the source of status or self-esteem differences is unrelated to the measure of intergroup differentiation (e.g. the classic minimal group paradigm with resource allocation matrices).

(3) A somewhat related point is that, in most of the relevant studies, self-esteem or status is manipulated relative to the outgroup. Although this makes sense in the context of intergroup comparisons, self-esteem may, of course, be affected in other ways. In any case, manipulating self-esteem relative to the outgroup invites the procedural problems outlined in the preceding paragraph, namely, that the manipulation establishes an intergroup comparison which has logical and empirical consequences for subsequent intergroup comparisons. Specifically, a previous manipulation of self-esteem relative to the outgroup may also establish a status differential between the ingroup and the outgroup which might induce the participants to allocate the resources in accordance with this status differential (cf. Reichl, 1997). In fact, there is evidence that at least some low-status participants actually exhibit outgroup bias under such circumstances: Blank (1997) categorised students in a ‘concentrated’ and an ‘unconcentrated’ minimal group on the basis of their alleged performance in a previous concentration test. A quarter of the participants in the ‘unconcentrated’ group favoured the outgroup in the Tajfel matrices and later indicated that they had done so because they thought that the ‘concentrated’ ones deserved more rewards because of their better achievement. Importantly, such an effect would counteract the presumed negative relation between self-esteem and ingroup bias which is the focus of the present article, and therefore it would be difficult to separate such previous-comparison effects on resource allocations from the impact of self-esteem per se. Thus, it
is probably premature to generalise from studies involving such relative self-esteem manipulations to the effects of (state or trait) self-esteem in general.

In short, there remains the possibility that a negative relation between self-esteem and ingroup bias as deduced from social identity theory (see Abrams & Hogg, 1988) exists but not for trait self-esteem and not in situations where group evaluation is logically related to outgroup-relative group performance feedback. Conversely, such a relation might be found under the opposite circumstances. In the experiment reported here, we (a) manipulated state self-esteem through success or failure in a complex problem-solving task. This feedback was (b) not relative to outgroup performance and (c) logically unrelated to the measure of ingroup bias, in our case, a set of Tajfel distribution matrices.

An additional feature of our procedure should further strengthen our manipulation: As shown in previous work (Petersen & Blank, 2001), ingroup bias is enhanced when the resource allocations are made by real groups instead of individuals. Strangely enough, even though intergroup discrimination is often exhibited in real group settings, its study via the minimal group paradigm has almost exclusively focused on individual participants’ decisions. However, for various reasons (discussed in Petersen & Blank, 2001; e.g. enhanced salience of the group categorisation, or group polarisation effects) real groups might show more ingroup bias, and indeed did so. With respect to our present concerns: If ingroup bias per se is enhanced in real groups, then differences in ingroup bias—as a result of group failure or success—might also be magnified. Therefore, there might be a better chance to find evidence for a negative relation between state self-esteem and ingroup bias with real groups. In addition, manipulating success or failure at the group level pertains more to self-esteem as derived from a particular social identity; it is this kind of self-esteem rather than individual self-esteem that is addressed by social identity theory in the first place (Abrams & Hogg, 1988; Long & Spears, 1997; Luhtanen & Crocker, 1992). Thus, we investigated the resource allocation decisions made by real three-person groups who had succeeded or failed in a complex problem-solving task just prior to allocating resources via Tajfel matrices.

Social identity theory predicts that our failing three-person groups should show more ingroup bias than their succeeding counterparts. In order to test this prediction, we categorised our participants in two arbitrary minimal groups according to their alleged preference for Klee or Kandinsky paintings. Then, three-person groups of the same alleged painter preference were formed who had the opportunity to spend some time on the computer game ‘Oecolopoly’ (Vester, 1991) where the players’ task was to run a simulated society. Although of course these three persons came to know each other, the usual minimal group conditions (and therefore also anonymity) still held with respect to the other three-person groups. For half of the groups, the computer game was made a success, whereas it was doomed to failure for the other half. Thereafter, all groups participated in an ostensibly unrelated decision-making task, that is, they distributed resources between other ingroup and outgroup participants via the Tajfel distribution matrices. We were interested in the amount of ingroup bias shown by successful and failing groups as captured by these groups’ allocation decisions.

**METHOD**

**Research Design**

A one-factorial design with independent groups was used. The factor group self-esteem had two levels (high group self-esteem versus low group self-esteem). The procedure was highly similar to the minimal group paradigm, employing the participants’ allocations of rewards to ingroup and outgroup members as the dependent variable.

Participants

The participants were 120 male and female German high school students, who volunteered to participate in exchange for a minor monetary remuneration (10 DM, approx. 5 Euro). The participants were between 16 and 18 years old.

Independent Variable: High Self-esteem Groups versus Low Self-esteem Groups

The experimenter formed 40 three-person groups during the experiment through random assignment with the restriction that all members of a given group were categorised to be either Klee or Kandinsky types. That is, each group knew its identity as either a Klee or Kandinsky group. Before each group had to reach a joint decision about the distribution of rewards using the Tajfel distribution matrices (see below), each group had to work on the computer program ‘Oecolopoly’. In this computer program the groups had to rule a fictional society and had to make decisions concerning demographic policy, educational policy, environmental policy etc. For 20 groups the program ran on a very easy level which means that the decisions of the groups led to a prosperous society with happy inhabitants. For the other 20 groups, the program ran on a very difficult level. The decision of these groups led to an impoverished society with unhappy inhabitants and actually ended for all 20 groups in an overthrow of the government.

We tested the effects of this manipulation on the state self-esteem of the groups in an independent examination. To this end, 19 three-person groups were exposed to the easy level scenario and 18 three-person groups were exposed to the difficult level scenario. After going through the scenario, the members of each group responded collectively to the items of a state self-esteem scale by Heatherton and Polivy (1991; items translated and formulated for the group context by the authors; mean scale values can range from 1 = very low group state self-esteem to 5 = very high group state self-esteem). The groups exposed to the easy level scenario rated their state self-esteem (M = 4.39) significantly higher than the groups exposed to the very difficult level scenario (M = 2.69, t(35) = 7.66, p < 0.001).

We also included a measure of current mood, the positive and negative affect schedule (PANAS) of Watson, Clark, and Tellegen (1988) in a German version by Krohne, Egloff, Kohlemann, and Tausch (1996). In the very difficult level scenario, the participants indicated more negative affect, t(35) = 6.71, p < 0.001, as well as less positive affect, t(35) = 4.73, p < 0.001, compared to the easy level scenario. On the one hand, this is not surprising since state self-esteem and mood are conceptually and empirically related; the average reported correlation between these measures is between 0.40 and 0.60 (Brockner, 1983). On the other hand, state self-esteem was to a certain degree independently affected in our two scenarios: Treating the mean mood scores as covariates, an ANCOVA revealed still higher self-esteem values in the groups exposed to the easy level scenario, compared to the groups exposed to the difficult level scenario, F(1, 35) = 6.02, p < 0.05. Therefore, we can conclude with some confidence that our success/failure manipulation does alter the state self-esteem of the participating groups, and henceforth we speak of the groups in the easy condition as high state self-esteem groups and of the groups in the difficult condition as low state self-esteem groups.

Procedure

A few days before the start of the investigation, the participants were recruited at various schools for an experiment claiming to examine decision-making behavior. An experimenter conducted the experimental sessions at a university laboratory over a period of 16 weeks. At each session, six or nine
participants were invited to form two or three groups. Each session had four major components as described below: the aesthetic preference test, the assignment to the Klee or Kandinsky group, working on the computer program, and the decision about the distribution of rewards.

Aesthetic Preference Test

At the beginning of each experimental session, all participants had to judge six colour copies of different paintings (three relatively unknown Klee paintings and three relatively unknown Kandinsky paintings) in terms of colour, form, and general impression. The participants, who were not informed about the artists prior to the test, recorded their judgements in questionnaires. Subsequently, they were led to believe that their questionnaires were being evaluated and their assignments to the Klee or Kandinsky group were based on their responses in the questionnaire. Actually, the experimenter did not use the completed questionnaires as a basis for the group categorisation but randomly assigned the participants to the Klee or Kandinsky group. While the participants’ questionnaires on aesthetic preferences were supposedly being evaluated, the participants completed a personality and creativity questionnaire as a filler task.

Assignment to the Klee or Kandinsky Group

After the experimenter had informed the participants about their questionnaire results, he told them that he was interested in examining decision-making behavior. This would entail separating them into two categories. For the sake of simplicity, they would be split up into the categories ‘Klee’ or ‘Kandinsky’ according to their results in the aesthetic preference test. Afterwards, the experimenter formed three-person groups. All group members were either Klee or Kandinsky types and were aware of this shared identity.

Working on the Computer Program

The experimenter explained that the first aim of the experiment was to analyse the decisions of the group while working on a computer simulation. The experimenter then explained the computer program ‘Oecolopoly’ to the participants. The computer program ran either on a very easy or a very difficult level, depending on the success/failure condition. The groups worked on the simulation until a final result was reached, which meant successful performance on the easy level (a prosperous society in the game) or a failure on the difficult level (an impoverished society in the game).

Distribution of Rewards

After the ‘Oecolopoly’ game, the experimenter told the participants that the second aim of the experiment was an analysis of the distribution of rewards. The experimenter explained to the participants that they would receive at least DM 10 (about 5 Euro), as initially promised, for their participation. They were further told that this amount might even be increased because a surplus remained on the account for participant expenses, which they could now distribute among the other participants via distribution matrices (the dependent variables are described in detail below). However, it was emphasised that they could not allocate money to themselves or to other members of their own
three-person group. The matrices were then administered using a computer notebook. Again each
group made its decision following a group discussion. They had to distribute their money to other
participants of whom only the group membership (i.e. Klee or Kandinsky group) was known.
Participants had no knowledge about the previous performance of these individuals (or their three-
person groups) in the computer game. Finally, all participants were asked to answer several questions
about their membership in the Klee or Kandinsky group and about the performance of their own three-
person group (both sets of questions are detailed below). At the end of the experimental session, the
experimenter carefully debriefed all participants.

Dependent Variables

Matrices

Intergroup discrimination was measured via the three-person groups’ distributions of rewards between
an anonymous member of the ingroup and an anonymous member of the outgroup. For this purpose,
we adopted Matrix 1 from the second experiment by Tajfel et al. (1971). It assesses the pull of
maximum ingroup profit (MIP) combined with maximum difference in favour of the ingroup (MDI) on
maximum joint profit (MJP), as well as the pull of MJP on MIP + MDI. Additionally, we adopted
Matrix 3 of the same experiment. It assesses the pull of MIP + MJP on MDI, as well as the pull of MDI
on MIP + MJP. Finally, we also used Matrix 3 of Billig and Tajfel (1973). This matrix assesses the pull
of fairness (F), that is, the equal distribution of rewards to the ingroup and the outgroup, on
MIP + MDI, as well as the pull of MIP + MDI on F (see Figure 1).

<table>
<thead>
<tr>
<th>Matrix A (MJP vs. MIP + MDI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 18 17 16 15 14 13 12 11 10 9 8 7</td>
</tr>
<tr>
<td>1 3 5 7 9 11 13 15 17 19 21 23 25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Matrix B (MDI vs. MIP + MJP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 8 9 10 11 12 13 14 15 16 17 18 19</td>
</tr>
<tr>
<td>1 3 5 7 9 11 13 15 17 19 21 23 25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Matrix C (F vs. MIP + MDI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 15 16 17 18 19 20 21 22 23 24 25 26</td>
</tr>
<tr>
<td>14 13 12 11 10 9 8 7 6 5 4 3 2</td>
</tr>
</tbody>
</table>

Figure 1. Matrices used in the experiment; points represent monetary payoffs

All matrices were presented once with the top row referring to an ingroup member and the bottom row referring to an outgroup member and vice versa, yielding six matrices. In addition, for purposes of replication, all matrices were also presented with columns and rows reversed, yielding another six matrices.

The principle underlying the calculations performed can be illustrated using Matrix A as an example. If the top row (19...7) in Matrix A is assigned to a member of the ingroup and the bottom row (1...25) is assigned to a member of the outgroup, then the maximum joint payoff lies on the right side and the maximum payoff in favour of the ingroup as well as the maximum differentiation in favour of the ingroup are found on the left side (version I/O). In other words, MJP, on the one hand, and MIP and MDI, on the other, are opposed to each other since the optimal scores of these strategies are located on opposite poles. If, however, the positions of the ingroup and that of the outgroup are exchanged, that is, the top row (19...7) is assigned to an outgroup member and the bottom row (1...25) is assigned to the ingroup member, then the strategy of MJP aligns itself with the strategies of MIP and MDI (version O/I). In this case, all strategies increase on the matrix from left to right. To calculate the pullscores, the decision made by participants when MJP and MIP + MDI oppose each other is compared with the decision participants make when MJP and MIP + MDI coincide (for details in calculating the pullscores see Blank, 1997; Bornstein et al., 1983; Petersen & Blank, 2001; Tajfel et al., 1971; Turner, Brown, & Tajfel, 1979). According to Diehl (1984), the pullscores may be treated as interval data. Thus the application of parametric statistical test procedures is warranted.

Total Points Assigned

As in other, more recent investigations on the minimal group paradigm, we did not rely exclusively on the use of pullscores to judge intergroup discrimination. We also calculated the total scores assigned to in- and outgroup members across all distribution matrices and used the difference as a global measure for intergroup differentiation (cf. Diehl, 1989a, 1989b). Across the matrices, the participants could assign between 64 points and 256 points to both the anonymous ingroup members and the anonymous outgroup members, with more points indicating a more positive treatment of the respective group. The points assigned to the ingroup members and the points assigned to the outgroup members were then used in the analyses.

Manipulation Checks

Group Categorisation

As a manipulation check on the ingroup/outgroup categorisation, all participants provided an evaluation of the ingroup and the outgroup on several items taken from Mummendey et al. (1992). These assessments were made after the participants had completed the booklet with the matrices. All participants evaluated ingroup and outgroup in terms of similarity (How similar do you suppose yourself to be to the members of the Klee group/Kandinsky group?) and attractiveness (How attractive do you judge membership in the Klee group/Kandinsky group to be?). Furthermore, participants specified their interest in members of the ingroup and outgroup (How interested are you in meeting a member of the Klee group/Kandinsky group?). The assessments were made on seven-point rating scales (ranging from 1 = not at all, to 7 = very much). Ratings regarding ingroup and outgroup were made on separate scales. The order of the scales was randomised across participants.
Self-evaluation of Group Performance in the Simulation Task

After the groups had finished their work on the computer simulation, they were asked to evaluate the performance of their group. Two questions were asked: ‘How good was your performance?’ and ‘How satisfied are you with your performance?’ The assessments were made on 10-point rating scales (ranging from 1 = poor quality and no satisfaction, respectively, to 10 = superior quality and high satisfaction, respectively).

RESULTS

Manipulation Checks

Self-evaluation of the Group Performance in the Simulation Task

First, we tested whether self-evaluation of group performance in the simulation task differed depending on the difficulty level on which the groups had to perform the simulation. In this analysis, as in all other analyses presented here, the units of analysis were the three-person groups. That is, with respect to self-evaluations, the ratings of the three members of each group were averaged and entered into the subsequent analyses. A t-test revealed a significant difference between the easy level condition and the difficult level condition concerning the self-evaluation of the performance quality, t(38) = 8.44, p < 0.001. Groups in the easy level condition (M = 7.10) rated the performance quality significantly higher than groups in the difficult performance condition (M = 2.85). Satisfaction with performance also differed as expected: Groups in the easy level condition were significantly more satisfied with their performance (M = 7.85) than groups in the difficult level condition (M = 2.48, t(38) = 9.40, p < 0.001).

Group Categorisation

In the case of a successful Klee/Kandinsky group categorisation, participants are expected to rate their similarity to ingroup members above that of the outgroup members. They should also judge the membership in their own group as more attractive than membership in the outgroup. Finally, they should be more interested in meeting a member of their own group than a member of the other group.

Table 1 lists the mean ratings of these assessments separately in terms of similarity, attractiveness and interest for high and low self-esteem groups. Overall, it shows that the social categorisation was effective. Preliminary ANOVAs showed main effects of the group categorisation for similarity, F(1, 38) = 17.10, p < 0.001, and for attractiveness, F(1, 38) = 19.62, p < 0.001, but not for interest, F(1, 38) = 3.17, ns. There were no main effects of the self-esteem manipulation nor any interactions with the group categorisation factor for any of the dependent measures. To establish that the group categorisation was successful within each level of self-esteem, we also analysed the impact of the group categorisation separately for the high and low self-esteem groups. In both types of groups, the participants judged their similarity to the ingroup to be significantly greater than towards the outgroup (low state self-esteem groups: t(19) = 3.16, p = 0.005; high state self-esteem group: t(19) = 3.38, p = 0.015). The attractiveness of the ingroup was also rated as being significantly greater when compared to that of the outgroup (low state self-esteem group: t(19) = 3.53, p = 0.002; high state self-esteem group: t(19) = 2.71, p = 0.014). Low state self-esteem groups further expressed a greater interest in meeting an ingroup member than an outgroup member, t(19) = 2.19, p = 0.042). However, high state self-esteem groups did not show a similar difference in interest.
Measures of Intergroup Discrimination

Distribution Strategies

The means for the distribution strategies are shown in Table 2. Separate t-tests (with adjusted degrees of freedom, due to unequal variances) were performed with respect to differences in the use of distribution strategies between the low and high state self-esteem groups. Low state self-esteem groups employed the strategy MIP + MDI versus MJP to a significantly stronger degree than high state self-esteem groups ($t(27) = 2.09$, $p = 0.046$), which means that low state self-esteem groups ($M = 1.93$) tended more strongly than high state self-esteem groups ($M = 0.45$) to maximise ingroup profit and/or to maximise the difference between ingroup and outgroup in favour of the ingroup. High state self-esteem groups, however, used the strategy F versus MIP + MDI to a significantly stronger degree than low state self-esteem groups ($t(29) = 2.49$, $p = 0.019$), which means that high state self-esteem groups ($M = 9.88$) were more likely to treat ingroup and outgroup members equally than did low state self-esteem groups ($M = 5.98$). No significant differences between high and low state self-esteem groups could be observed concerning their use of the strategies MJP versus MIP + MDI, MDI versus MIP + MJP, MIP + MJP versus MDI and MIP + MDI versus F.

Total Points Assigned

Low state self-esteem groups assigned 173.70 ($SD = 20.66$) points to the ingroup and 153.50 ($SD = 19.53$) points to the outgroup. In the high state self-esteem condition, a ratio of 162.70 ($SD = 7.75$) points to 155.45 ($SD = 7.44$) points was measured. We conducted a mixed-model ANOVA with the number of points assigned as the dependent variable and self-esteem and ingroup/outgroup membership of the rewarded persons as independent variables. This analysis revealed no main effect of self-esteem and a trivial main effect of ingroup/outgroup membership, $F(1, 38) = 19.45, p < 0.001$, confirming the overall finding of ingroup bias. In addition, there was a significant interaction between

Table 1. Means for judging ingroup and outgroup in terms of similarity, attractiveness and interest in future contact

<table>
<thead>
<tr>
<th>Dimension</th>
<th>State self-esteem</th>
<th>Ingroup</th>
<th>Outgroup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Similarity</td>
<td>Low</td>
<td>$M$ 4.03</td>
<td>3.05</td>
</tr>
<tr>
<td></td>
<td>$SD$ 1.37</td>
<td>0.93</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>$M$ 4.05</td>
<td>3.38</td>
</tr>
<tr>
<td></td>
<td>$SD$ 0.81</td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td>Attractiveness</td>
<td>Low</td>
<td>$M$ 4.64</td>
<td>3.30</td>
</tr>
<tr>
<td></td>
<td>$SD$ 1.13</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>$M$ 4.06</td>
<td>3.11</td>
</tr>
<tr>
<td></td>
<td>$SD$ 1.23</td>
<td>0.87</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>Low</td>
<td>$M$ 4.68</td>
<td>4.13</td>
</tr>
<tr>
<td></td>
<td>$SD$ 1.54</td>
<td>1.78</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>$M$ 4.31</td>
<td>4.28</td>
</tr>
<tr>
<td></td>
<td>$SD$ 1.26</td>
<td>1.48</td>
<td></td>
</tr>
</tbody>
</table>

Note: Values can range from 1 (no similarity, low attractiveness, no interest, respectively) to 7 (high similarity, high attractiveness, high interest, respectively).
the independent variables, \( F(1, 38) = 4.36, p = 0.04 \), indicating that the amount of ingroup bias differed between the high and low self-esteem groups. In order to determine the direction of this difference, we recurred to the difference measure suggested by Diehl (1989a, 1989b; total difference between points assigned to the ingroup and the outgroup) which is given in Table 2 (bottom row). An adjusted \( t \)-test revealed that low state self-esteem groups \( (M = 20.20) \) preferred the ingroup more than did high state self-esteem groups \( (M = 7.25, t(24) = 2.07, p = 0.0497) \). This difference was mainly a consequence of differential resource allocation to the ingroup rather than to the outgroup: An adjusted \( t \)-test showed that low state self-esteem groups \( (M = 173.70) \) assigned significantly more points to the ingroup than did high state self-esteem groups \( (M = 162.70, t(24) = 2.22, p = 0.03) \), whereas the allocations to outgroup members made by low state self-esteem groups \( (M = 153.50) \) and high state self-esteem groups \( (M = 155.45) \) did not differ significantly from each other, \( t(24) = 0.40 \).

### Variability of Discriminatory Behaviour

An interesting observation in its own right is that the variability of the various measures of ingroup bias and also of fairness was much larger in the low self-esteem groups (see Table 2). In fact, the variances are significantly larger in the low state self-esteem groups for three of the distribution strategies, namely, MIP + MDI versus MJP, MIP + MDI versus F, F versus MIP + MDI, as well as Diehl’s difference measure, and marginally so for two other strategies, MJP versus MIP + MDI and MIP + MJP versus MDI. What this means may be illustrated with the difference measure: Both the largest amount of ingroup bias and the largest amount of outgroup bias were found in the low state self-esteem groups. This may point to more heterogeneous consequences of the self-esteem manipulation in this condition.

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Table 2. Pullscores of distribution strategies and difference of total points in favour of the in group for low and high state self-esteem groups

<table>
<thead>
<tr>
<th>Distribution strategy</th>
<th>Low state self-esteem group</th>
<th>High state self-esteem group</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIP + MDI versus MJP</td>
<td>( M ) 1.93*</td>
<td>0.45</td>
</tr>
<tr>
<td></td>
<td>( SD ) 2.85</td>
<td>1.35</td>
</tr>
<tr>
<td>MJP versus MIP + MDI</td>
<td>( M ) 0.90</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>( SD ) 3.22</td>
<td>1.34</td>
</tr>
<tr>
<td>MDI versus MIP + MJP</td>
<td>( M ) 1.38*</td>
<td>0.93*</td>
</tr>
<tr>
<td></td>
<td>( SD ) 2.40</td>
<td>1.65</td>
</tr>
<tr>
<td>MIP + MJP versus MDI</td>
<td>( M ) 1.03</td>
<td>(-0.45)</td>
</tr>
<tr>
<td></td>
<td>( SD ) 4.52</td>
<td>1.59</td>
</tr>
<tr>
<td>MIP + MDI versus F</td>
<td>( M ) 1.50</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>( SD ) 3.46</td>
<td>1.87</td>
</tr>
<tr>
<td>F versus MIP + MDI</td>
<td>( M ) 5.98*</td>
<td>9.88*</td>
</tr>
<tr>
<td></td>
<td>( SD ) 6.19</td>
<td>3.29</td>
</tr>
</tbody>
</table>

**Difference of total points in favour of the ingroup**

|                                             | \( M \) 20.20*              | 7.25*                       |
|                                             | \( SD \) 26.25               | 9.85                        |

*Means differ significantly from zero at \( p < 0.05 \) (two-tailed tests)

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Note: Mean pull scores for each distribution strategy can range from \(-12\) to \(+12\).
DISCUSSION

Social identity theory posits that low self-esteem leads to increased ingroup bias (e.g. Abrams & Hogg, 1988). This perspective argues that individuals with low self-esteem need to favour ingroups, derogate outgroups, or both, to enhance their low self-esteem, whereas high-self-esteem individuals do not need to enhance their self-esteem and thus do not engage in such behaviours. As detailed in the introduction, there is a bulk of research which challenges this assumption (see Aberson et al., 2000; Mullen et al., 1992). Crocker and Luhtanen (1990), for example, argued that high self-esteem individuals are more likely to show ingroup bias, because this is how they create and maintain their high self-esteem. In a related vein, Brown, Collins, and Schmidt (1988) suggested that low and high self-esteem individuals exhibit ingroup bias only in manners consistent with their self-concepts. In particular, for people with low self-esteem, ingroup bias may conflict with their self-perception as being inferior to others (Brown, 1993). Thus, contrary to the social identity perspective, there are also reasonable arguments leading to the expectation of a positive relation between self-esteem and ingroup bias.

In our study, we found a negative relation between state self-esteem and ingroup bias. Low state self-esteem groups showed significantly larger ingroup bias in their decisions than high state self-esteem groups. Low state self-esteem groups allocated more money overall to ingroup members and employed the ingroup strategy MIP + MDI versus MJP to a significantly stronger degree than did high state self-esteem groups. Thus, our results support the original assumption of social identity theory, which was only weakly supported in past research and seriously called into question by some researchers (as described above).

In the introduction, we discussed the evidence that led to this scepticism and found that (a) self-esteem in these studies is mostly conceived as a trait-like entity and that (b) manipulations of self-esteem or status and the subsequent measurement of intergroup differentiation are often made along the same underlying evaluative dimensions, which counteracts a possible negative relation between self-esteem and ingroup bias. Furthermore, (c) the manipulation of self-esteem relative to an outgroup may obscure effects of (trait or state) self-esteem that are not reactions to immediately preceding intergroup comparisons. As described in more detail in the introduction, we think that self-esteem as conceived in social identity theory has more state-like properties. It varies, for example, according to available comparison groups and success or failure of one’s own group. Therefore we manipulated the state self-esteem of real groups in a group situation through failure or success feedback in a problem-solving task. This, together with a manipulation of self-esteem without reference to the outgroup and the assessment of ingroup bias independent from this manipulation, led to results that differ from most of the results incorporated in the meta-analyses by Aberson et al. (2000) and Mullen et al. (1992) but coincide, for instance, with those of Hogg and Sunderland (1991; a study that was not included in either of the above meta-analyses), who also found a negative relation between self-esteem and ingroup bias under similar conditions.

Altogether, we think that the original assumption of social identity theory that threatened or low self-esteem leads to more ingroup bias may be true under the conditions described above. This does not imply that all of these conditions are necessary to obtain a negative relation between self-esteem and ingroup bias. For example, negative self-esteem stemming from social comparison to an outgroup (induced by negative performance feedback relative to the outgroup) may also lead to ingroup bias on task-irrelevant dimensions (e.g. Reichl, 1997). However, we think that the focus on this kind of self-esteem is unnecessarily narrow and that research on intergroup discrimination may be informed by broader investigations of the self-esteem-ingroup bias relation.

On the other hand, as our analyses of the variability of intergroup discrimination suggest, the expectance of a uniform negative relation between self-esteem and ingroup bias may be overstated
even under the appropriate conditions. In particular, it seems that low state self-esteem can lead to quite heterogeneous consequences. While many of these groups indeed showed more ingroup bias, in line with the social identity expectations, there were also groups that distributed perfectly fairly or even exhibited outgroup bias. This may simply indicate that ingroup bias is influenced by other variables in addition to self-esteem, for instance, social norms like fairness (see, e.g. Gaertner & Insko, 2001; Hertel & Kerr, 2001, on the impact of norms in minimal group situations). Additionally, however, it may be that processes leading to the above-mentioned opposite (i.e. positive) relation between self-esteem and ingroup bias still operate under ‘suboptimal’ conditions. For example, the group members might feel that, on the basis of their poor performance, they do not deserve rewards and therefore allocate more points to the outgroup even if they know nothing about this outgroup’s performance relative to their own. This would lead to the generalisation that under every possible set of conditions, both relations (i.e. negative and positive) between self-esteem and ingroup bias may be possible for different individuals or groups, and the ultimate amount of ingroup bias would result from a mix of both tendencies, depending on whether the conditions favour one or the other relation. One may also speculate that opposing discrimination tendencies in a state of low state self-esteem after task failure may introduce a new role for trait self-esteem as a moderator of the direction and extent of discrimination. This is because the ‘drop’ from the initial chronic (i.e. trait) level is much more marked for high trait self-esteem individuals or groups, compared to their low trait self-esteem counterparts, and therefore they should feel more inclined to restore the initial level, for instance, by showing ingroup bias. In any case, researchers are well advised to look closely at the variability of intergroup discrimination which might reveal such opposing tendencies.

In sum, we think that the major conclusion to be drawn from our research is that the original assumption of social identity theory, that self-esteem is negatively correlated with ingroup bias, may hold particularly under the conditions we realised in our study (state self-esteem; manipulation of self-esteem without reference to the outgroup; assessment of ingroup bias independent from this manipulation). Therefore, we believe that it is too early to deliver the coup de grace on what Abrams and Hogg (1988) called the second corollary of the self-esteem hypothesis. Another important insight, however, stems from the observed larger variability of intergroup discrimination in the low self-esteem groups. Low self-esteem may evoke heterogeneous discrimination tendencies of varying impact under different conditions which might be a valuable topic for future research.

AUTHORS’ NOTE

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