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Quality of Decision Making and Group Norms

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Two studies investigated the impact of group norms for maintaining consensus versus norms for critical thought on group decisions in a modification of the biased sampling paradigm (G. Stasser & W. Titus, 1985). Both studies showed that critical norms improved the quality of decisions, whereas consensus norms did not. This effect appeared to be mediated by the perceived value of shared and unshared information: Consensus norm groups valued shared information more highly than critical groups did, and valence was a good predictor of decision outcome. In addition, the 2nd study showed that the group norm manipulation has no impact on individual decisions, consistent with the assumption that this is a group effect. Results suggest that the content of group norms is an important factor influencing the quality of group decision-making processes and that the content of group norms may be related to the group's proneness for groupthink.

A large body of literature has investigated dysfunctional properties of group decisions and groups in general. For example, groups have been described as inefficient, unimaginative, inaccurate and unproductive (e.g., Stroebe & Diehl, 1994; see Baron, Kerr, & Miller, 1992, for a review). One very influential study of group decision making has argued that groups may be prone to *groupthink*, a drive for consensus that overrides realistic appraisal of decision alternatives (Janis, 1982; see Esser, 1998, and Paulus, 1998 for reviews). The source of groupthink is a group's cohesion, which goes hand in hand with a lack of criticism. In the present research, we investigated the possibility that cohesion is not necessarily the cause of the problem (and may even be a part of the solution) with regard to faulty decision processes. We examine the idea that group norms may influence the quality of group decisions independent of factors relating to group cohesion. Specifically, we focus on the role of group history in the formation of critical versus consensual group norms that may boost or deteriorate the quality of group decisions.

Biased Sampling

In an examination of the pooling of information in decision-making groups, Garold Stasser and his associates developed an experimental paradigm in which groups would seem almost certain to outperform individuals (e.g., Stasser & Titus, 1985). In this "biased sampling paradigm," groups can arrive at a correct decision by pooling information that is given to members individually. However, groups surprisingly fail to be more effective than individuals: Members do not pool critical information, and the quality of decisions is low (Wittenbaum & Stasser, 1996, for a review).

Stasser and Titus (1985) conducted the first investigation in this paradigm with a "hidden profile" of job candidates. Such a hidden profile does not distribute all characteristics equally among group members. Some information is shared among all group members, and some is "unshared": given to individual group members only. If, for example, all the positive information about one candidate is unshared, this candidate appears to be less good on average than if all information were pooled. In this fashion, so-called hidden profiles may exist that are designed to lead to a correct solution only if unshared information is discussed within the group. The degree to which groups reach the correct solution is thus a measure of the quality of group decision making. Stasser and Titus's (1985) study compared the performance of groups that shared all information with groups having unshared information. When all the necessary information about the candidates was shared among participants, they reached correct decisions 68% of the time without discussing this information in the group, and group discussion slightly improved performance, to 83% correct decisions. In contrast, when not all information was shared among participants, individual decisions were of poorer quality, as is to be expected: Only 25% of decisions were correct. Group discussion did not improve decision quality, however, and even deteriorated the decision quality somewhat, to 20% correct in one condition and to 17% in another. These results suggest that unshared information is not routinely pooled in discussion, which causes group decisions to be no better than individual decisions in this particular task.

The authors suggested the biased sampling model to account for these findings. According to this model, group decisions are based on evaluation of information that is available. Evaluating each characteristic of a candidate in a similar way to that proposed by persuasive arguments theory (e.g., Burnstein & Vinokur, 1977), people aggregate the pros and cons to come up with a judgment of

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which candidate is superior. This implies that if information were to be shared among all group members, people would be able to make the correct decision: Decisions are based on the information at hand. To account for the finding that no pooling occurs, the biased sampling model offers two explanations that could operate in conjunction, one probabilistic and one motivational. First, there is a greater a priori probability that shared information will be mentioned during discussions. Statistically the chance of an item being mentioned is greater for a shared item than for an unshared item, because the shared item is known to more people. According to the second (motivational) explanation, information entered in the discussion favors the initial preference more than the alternatives. People are more motivated to enter arguments in discussions that support their own views. This would lead to an exchange of arguments supporting the wrong candidate in the hidden profile situation. Both these explanations would account for the failure of groups to focus on shared information and not pool unshared information.

Many studies have since confirmed that groups do not pay sufficient attention to the unshared information and consequently make inadequate decisions (e.g., Hollingshead, 1996; Larson, Christensen, Abbott, & Franz, 1996; Larson, Christensen, Franz, & Abbott, 1998; Larson, Foster-Fishman, & Franz, 1998; Larson, Foster-Fishman, & Keys, 1994; McLeod, Baron, Marti, & Yoon, 1997; Schittekatte & Van Hiel, 1996; Stasser & Stewart, 1992; Stasser, Taylor, & Hanna, 1989; Stasser & Titus, 1985, 1987; Stasser, Vaughan, & Stewart, 2000; Stewart, Billings, & Stasser, 1998; Stewart & Stasser, 1995, 1998; Winquist & Larson, 1998; Wittenbaum, 1998). Moreover, this bias to favor shared information appears to be a very robust phenomenon (e.g., Wittenbaum, 1998). For example, Stasser et al. (1989) showed that groups with instructions designed to improve decision making did not perform any better than groups without instructions. Likewise, Larson et al. (1994) attempted to improve the quality of group decisions by providing decision training and by varying task importance. However, these factors also failed to improve decisions. One of the few successes so far in substantially improving decision quality was based on manipulations of the nature of group tasks. Stewart and Stasser (1998; see also Stasser & Stewart, 1992) demonstrated that decision quality improved in a hidden-profile situation as a function of the task type. When groups were informed that theirs was a task in which one correct answer existed (a "solving" task), more correct solutions were obtained compared with instructions that evidence was incomplete, but a most likely alternative would have to be selected (a "judge" task; cf. Laughlin, 1980). It was shown that the solve groups outperformed the judge groups, and that solve groups paid more attention to "critical cues" (i.e., those that distinguish between decision alternatives).

In sum, the biased sampling studies suggest that when it comes to unshared information, groups fail to consider pieces of information that are crucial for making the best decisions (Wittenbaum & Stasser, 1996). Moreover, this is a persistent effect: Improvements appear to be minimal even if groups are made aware that they should pool information. In this respect, the biased sampling paradigm has some similarities to Janis's (1982) groupthink cases, in which disconfirming evidence was ignored despite ample warnings of imminent disaster. The implication of this groupthink analogy is that an improvement of decision making within the biased sampling paradigm could be obtained if groups would invest energy in the critical examination of decision alternatives. The present research therefore examines possible reasons for this devotion of groups to initial decisions, and the inclination to ignore disconfirming evidence. Specifically, we focus on the possibility that this devotion may be influenced by group norms to reach consensus and may be reduced by making salient different kinds of norms.

Influences of Norms in Decision-Making Groups

Group norms perform an important regulatory function in small groups (Baron et al., 1992; Levine & Moreland, 1990, for reviews), although the influence of norms on group decisions in particular has not been investigated in many studies. A *group norm* is defined as a standard or rule that is accepted by members of the group as applying to themselves and other group members, prescribing appropriate thought and behavior within the group. Group norms may be situationally and locally defined, and hence may be quite independent and distinct from social norms that exist at the levels of communities and society (Postmes & Spears, 1998; Sherif, 1936). Such local group norms may have substantial impact in eliciting conformity to specific ideas or solutions (see also Levine & Moreland, 1991). Groups often have norms that promote the importance of consensus per se (such as appears to be the case in Japanese organizations; e.g., Hofstede, 1980). However, in some other groups it may be the case that deviance and critical thought are seen as desirable behavior for group members. Indeed, norms for individual independence of thought may exist in some groups (many of the academic community's scholarly values speak to this point). Thus, independence of thought and cohesiveness may not be so antagonistic as to preclude the possibility that otherwise cohesive groups may have norms that encourage criticism and dissent.

Norms and the Perceived Value of Information

Within the biased sampling paradigm, these group norms of consensus versus independence may have an important impact on how group members value shared information versus unshared information. Within groups in general, consensus performs important functions. For example, subjective validity is achieved when there is a perceived consensus about information (Asch, 1952; Turner, 1991). This implies that the perceived validity of information in a group context may in part be socially established, at least if consensus is an important factor for group members. Therefore, it may be the case that within certain groups shared and unshared information differ beyond the mere availability of items: Shared information can be validated socially (all members being aware of this information), whereas unshared information cannot (e.g., Larson et al., 1994; Stasser, 1992). This implies that if achieving consensus is important for a group, shared information should be valued more highly than unshared information, although the informational value of different items might appear to be equal to an outsider or to a person less invested in group consensus.

We argue that this differential evaluation of shared and unshared information depends on characteristics of the group, however. Within a group that promotes independence and critical thought, information ought to be validated and assessed critically and independently, and information should be validated according to

"objective" standards and individual thought. In this case group members could treat every piece of information as equally valid, with little distinction between shared and unshared information. However, if the group's norms are strongly tilted toward reaching consensus, we argue that shared information will be regarded as having higher value, because it reflects and feeds this consensus. The characteristics of the biased sampling paradigm are such that valuing shared information will lead to a higher probability of incorrect decisions. Dwelling on shared information reinforces the initial (faulty) decision and precludes the investigation of alternatives that may be better. Indeed, the very consensus of the information may be seen as contributing to the perceived correctness of the decision, so that even if all information were eventually to be shared during the discussion, information common to all may still be valued more highly than unshared information. Thus, groups with a norm prescribing consensus should, on average, be less likely to reach correct decisions in the biased sampling paradigm than are groups with a norm of critical and independent thought. However an independent empirical test had to be conducted to test these predictions.

In sum, the present research explored an additional cause (and potential remedy) for faulty decision making in the biased sampling paradigm. This process relies not so much on the sampling of shared and unshared information, as on the value attached to items of information that are common to all members of the group, and items of information that are unique to individual group members.[1] We hypothesized that the evaluation of shared and unshared information is moderated by group norms. Specifically, we focused on group norms of consensus and norms promoting dissent, which we refer to as *consensus norms* and *critical norms*, respectively. Groups with consensus norms should value shared information more highly compared with unshared information and compared with groups with critical norms. This differential evaluation, in turn, should affect the quality of group decisions: Groups with a consensus norm are predicted to make poorer decisions than are groups with critical norms.

Overview of Studies

We report two pilot studies and two experiments designed to test the hypothesis that group decision making could be improved by inducing a critical group norm, whereas group decisions would not improve when a consensus norm is activated. We examined decision-making processes in situations in which information is not equally available to all members of a small group, addressing theoretical issues of group decision making in a biased sampling paradigm. In addition, we tested the assumption underlying the groupthink hypothesis (Janis, 1982), but extended the theoretical basis for this idea by taking into account the role of group norms in inducing an atmosphere of uncritical assent that seems to have contributed to the disastrous decisions characterizing this phenomenon. The method used to make group norms salient is developed in the pilot studies.

Pilot Studies

In two pilot studies, we sought to establish that it is possible to induce group norms of consensus and critical norms. This was done by providing a group with a specific task that steers people's inferences and attributions about the group and its social norms. The challenge is in showing that these norms can be promoted, while showing that they do not lead to differences in group cohesiveness.

Several studies have confirmed the idea that experience generated during group history may help establish a group norm (Jacobs & Campbell, 1961; Sherif, 1936). Group members induce group norms from observing the behavior of other group members, and possibly of themselves as well (Postmes, Spears, Sakhel, & De Groot, in press). Thus, in the pilot we examined the impact of small tasks on group members' perceptions of the group and of group norms, anticipating that these perceptions would influence their performance on subsequent tasks. As mentioned, one aim was to invoke a critical versus a consensus norm, whereas a second aim was to keep cohesiveness constant. We reasoned that both tasks would therefore have to be tasks that kept the unity of the group intact. A critical norm could be fostered when group members collaborate to perform a task in which independence and unique contributions are essential to achieve a group goal. Specifically, we instigated a group discussion on a policy proposal about which it would be easy to reach complete agreement, namely that this was a bad proposal. Thus, we gave groups the task to discuss a proposal that they would likely rapidly agree is a bad one. We reasoned that critical and independent thought would be tolerated and valued because this was essentially the purpose of the group, but that the ultimate agreement about the proposal would be beyond doubt, and would preserve the cohesiveness of the group.

In contrast, in a group in which the primary task was one of collaboration to reach a common goal (rather than to debate), we anticipated that a norm of consensus would emerge. We thought that engaging in a collective creative task such as making a poster with the group would require harmonious and consensual collaboration. In this task, each group member contributed to the end product by performing one of several tasks (selecting images, cutting them out, putting images together, etc.). In such a group task, the individual contributions are of secondary importance to the group product and differences between group members might actually threaten the group goal. Therefore critical and independent thought should be less desirable and normative than consensus.

Pilot 1

Method. Thirty-four undergraduates participated in return for course credit. Participants were randomly divided into eight groups of 3 to 5 members and seated around a table. The norm manipulation consisted of a 10-min group assignment. In the consensus norm condition participants were given a pile of glossy magazines, two scissors, glue, and a large sheet of paper. Groups were given the following instructions:

> In the first part of this study all groups will make a poster in 10 minutes. With old magazines, glue and a scissors you can make any

[1] Indeed, to test these predictions one needs to ensure that biased sampling is no longer an issue during group discussions. Availability of unshared information may interfere with the value attached to shared or unshared information, because each new piece of information affects the relative diagnosticity of other items. To reduce this disturbance, in the present studies we made modifications to the biased sampling paradigm to ensure that all information would be shared prior to group discussion.

> poster according to your own taste. Make sure that every group member contributes to the final result.

Participants were thus stimulated to make communal decisions about the poster. In the critical norm condition participants were given the following instructions:

> In the first part of this study all groups will judge a policy proposal. You are asked to discuss this proposal for 10 minutes, and decide what your group thinks of this proposal. Make sure you reach a common opinion. If you cannot agree, take the average of opinions as the group opinion.

Participants then discussed the following proposal: "People who graduated from University should pay extra taxes to finance student scholarships." Pretesting revealed that virtually all students were against this proposal. Group opinions were recorded on an answering sheet with a 7-point rating scale ranging from 1 (*disagree*) to 7 (*agree*).

After the group task participants individually filled out a questionnaire. Three questions were concerned with the perceived norms of group members: "People in this group generally are critical," "People in this group generally adjust to each other" (recoded), and "This is a critical group." These questions were combined into one scale ($\alpha = .79$). To check for the cohesiveness of groups, we aggregated the levels of group identification for each member into a group-cohesiveness score (cf. Hogg, 1992). The scale consisted of four questions: "I feel connected to the people in this group," "I like to see myself as a member of this group," "I identify with the members of my group," and "I am like the others in this group" ($\alpha = .77$). These questions were answered on 7-point rating scales ranging from 1 (*disagree*) to 7 (*agree*).

Results and discussion. Results of the pilot (and of all other studies reported in this article) were analyzed at the group level. Groups easily reached consensus on the discussion task, as expected, and no problems were encountered with collating the posters. Results of t tests indicated that the group norm appeared to be manipulated successfully: Groups in the critical norm condition estimated their groups to be more critical ($M = 4.40$, $SD = .45$) than did groups in the consensus norm condition ($M = 3.05$, $SD = .46$), $t(6) = 4.17$, $p < .01$. Moreover, the differences in cohesiveness between critical groups ($M = 3.26$, $SD = .59$) and consensus groups ($M = 3.36$, $SD = .17$) were not reliable, $t(6) = 0.35$, $p = .74$, *ns*. Thus we did not find any effect of the group norm on degree of cohesiveness. These results confirm that the norm manipulation was successful in affecting the perceived group norm, but had no reliable impact on the cohesiveness measure.

Although results suggest that the manipulation of the group norm was successful, the number of groups was small. Moreover, the group norm measure referred to perceived personal norms of group members. Group norms also prescribe behavior of group members and are perceived as properties of the group as a whole. We conducted a second pilot study to verify that the effects of the group norm manipulation were indeed normative in the sense that they had prescriptive properties and were perceived as group properties beyond group members' personal norms.

Pilot 2

Method. Thirty-six undergraduates participated in return for course credit. Participants were randomly divided into 12 groups of 3 members. The group tasks and the instructions to perform the tasks were identical to the first pilot study, as was part of the questionnaire. The scales of the perceived group members' norms ($\alpha = .88$) and cohesion ($\alpha = .82$) were included as in the previous pilot. However, two measures of the group norm were added to the questionnaire. The difference between the measures of group norm that we added to the scale and the one that was previously included was that, whereas the previous scale asked for perceptions of group *members'* personal norms, the added scales asked directly how participants perceived the norms and expectancies of the group *as a whole.*

The first addition was a scale of critical group-norm perception. This scale consisted of three items: "In this group you should think critically," "In this group you ought to act independently," and "In this group you are expected to make an independent contribution" ($\alpha = .72$). The second addition was another scale consisting of three statements to measure if the perceived group norm was consensual. The statements were "In this group you should contribute to the group's goals," "In this group you ought to align yourself with the opinions of other members," and "In this group you should conform to the others" ($\alpha = .73$). Items were answered on 7-point rating scales ranging from 1 (*disagree*) to 7 (*agree*).

Results and discussion. Results from t tests indicated that the group norm manipulation was successful. Groups in the critical norm condition perceived other group members to be more critical ($M = 5.19$, $SD = 0.81$) than did groups in the consensus norm condition ($M = 3.37$, $SD = 0.63$), $t(10) = 4.35$, $p < .001$. In addition, participants in the critical norm condition perceived the norm of the group as a whole to prescribe that group members should be more critical ($M = 5.11$, $SD = 0.85$) than did participants in the consensus norm condition ($M = 3.76$, $SD = 0.83$), $t(10) = 2.78$, $p = .019$. Conversely, participants believed that their groups had a more consensual norm in the consensus norm condition ($M = 4.59$, $SD = 0.54$) than did participants in the critical norm condition ($M = 3.20$, $SD = 0.73$), $t(10) = 3.75$, $p = .004$. As in the previous pilot study, no difference was found in cohesiveness between groups in the critical norm condition ($M = 4.25$, $SD = 0.78$) and consensus norm condition ($M = 3.70$, $SD = 0.68$), $t(10) = 1.32$, $p = .22$, *ns*. Thus, we did not find any indication that cohesiveness within groups was affected by the norm manipulation.

The results of these pilot studies indicate that group norms can be successfully manipulated by giving groups a particular task to work on. Having a group discussion fosters the inference of a critical norm within the group (both with regard to group members and to the group as a whole), and the task to collate a poster fosters the formation of a consensual and less critical group norm. When the effects of the norm manipulations on group cohesiveness were compared, the difference between conditions was nonsignificant and descriptively small.

Study 1

Having established the effect of a prior task on the perceived group norm, we now are in a position to test the main predictions. To reiterate briefly, the first study investigated the impact of group norms on the quality of decisions in the biased sampling paradigm. As in the pilot study, the formation of group norms was manipulated with prior tasks. In an ostensibly unrelated experiment following this task, participants made individual decisions based on incomplete profiles of job candidates (Phase 1 of the decision-making process), followed by a group discussion about the candidates in which they were asked to reach consensus (Phase 2). We predicted that groups with consensus norms would value shared information more highly than unshared information, whereas

groups with a critical norm would value unshared and shared information more equally. To test this prediction, however, we made a modification to the biased sampling paradigm to ensure that all unshared information was equally available to group members at Phase 2, the group discussion.[2] Without this modification, the unequal sharing of information would interfere with its evaluation, because the relative value of individual items is altered each time a new piece of information is learned. Therefore, we ensured that all information was available at the start of the group-discussion phase. We predicted that the unequal evaluation of information leads to more correct decisions in the critical norm groups compared with the consensus norm groups.

Method

Participants. Participants were male (n = 33) and female (n = 39) undergraduate students who participated in exchange for course credit. They were randomly assigned to 18 groups of 4 participants who performed two ostensibly unrelated tasks. After the completion of a prior task designed to instigate a norm toward group consensus, or a prior task stimulating a critical group norm, participants were asked to make individual and then group decisions.

Procedure and measures. Participants were informed that they would participate in two unrelated experiments. In what they thought was the first study, participants were instructed to complete an initial group task that was identical to the pilot. Thus, half the groups had a brief discussion about an unrelated policy proposal, and half the groups made a poster. Then, participants were informed that the second study required them to make individual and group decisions. Participants were separated and placed in an isolated cubicle containing a desk with a Macintosh computer, a sealed envelope, and an instruction sheet with the profiles of three candidates for a university position and a response sheet attached. Participants were instructed to read the instruction sheet, which informed them of their task to pick the candidate who in their view was most suited for a faculty position at the university. On the response sheet, they were asked to circle the best candidate. All this was done privately.

After participants had completed the individual task, they received instructions from the computer for the group discussion. These instructions explicitly informed them that the profiles had been incomplete, and that each group member had been given some unique information. They were asked to retrieve new profiles from the envelope on their desk, and were informed that the information previously hidden to them (i.e., unshared information) was now printed in bold and that the information common to all group members (shared information) was on the bottom half of the sheets. They were then instructed to discuss the candidates with their group and reach unanimous consensus about the best candidate. These discussions were conducted through a Macintosh computer in front of them, on which a synchronous computer conference was conducted (cf. McLeod et al., 1997, for a discussion of the utility of these computer-mediated decisions). The system used was TownMeeting, a basic group-decision support system for the Macintosh platform. During these discussions, a group tag and individual identifying numbers identified each comment made by group members. No rigid time constraints were imposed on groups, although the experimenter warned them that they would be prompted to reach agreement after 40 min. After reaching group consensus, the computer screen went blank and each participant recorded the group decision. Participants then individually filled out a questionnaire and were debriefed.

Materials. The profiles described three candidates (A, B, and C) for a teaching position in the university. The profiles were similar to Stasser and Titus (1985), and, on the basis of pilot research, the valence and relevance of individual characteristics (qualifications, traits, and biographical data) was matched to be equally positive, neutral, or negative. Each complete profile consisted of 16 characteristics, but they were assigned such that Candidate A had more positive characteristics (eight positive, four neutral, and four negative) compared with B and C (four positive, four negative, and eight neutral). Participants were given incomplete profiles, however, from which six characteristics of each candidate were missing. For Candidate A, the positive characteristics were unshared, such that each participant knew of only two of the eight. For Candidate B, four negative and four neutral characteristics were "unshared", in the sense that participants were given only one negative and one neutral trait each. For C, the four positive and four negative characteristics were unshared, and participants were given one of each. On the basis of incomplete profiles, B would therefore appear to be the best candidate.

The questionnaire commenced by asking the same questions that were asked prior to the group discussion on the response sheet. Thus, participants individually rated the suitability of each candidate for the job. Participants responded to the question "To what extent do you think candidate [A, B, or C] is suited for this job" on 7-point rating scales ranging from 1 (*not suitable*) to 7 (*very suitable*). Subsequently, a check of the norm manipulation followed, which was the same measure of the group norm used in Pilot 1 (α = .89). Participants then completed the group cohesiveness measure as before (α = .90), and they rated their satisfaction with the group decision on a 7-point rating scale ranging from 1 (*not satisfied*) to 7 (*very satisfied*). Finally, all attributes of the candidates were listed on a page, and participants were asked to rate the value of each attribute for reaching the correct decision, on a 7-point rating scale ranging from 1 (*not valuable*) to 7 (*valuable*). These value ratings were used to compute two scores: the average value of items that were shared (i.e., those items that were available to all individuals in the group for the individual decisions), and the average of those that were unshared (i.e., in the present study these are the items that only became available on paper just before the group discussion, but in the standard paradigm this is the unshared information that could be pooled during the discussion).

Results

Manipulation check and group discussion. All results were analyzed at the group level because of the interdependence among individuals within groups. The manipulation check failed to show that the manipulation of group norm was successful. Groups in the consensus norm condition rated their group as not reliably less critical (M = 4.87, SD = 0.67) than did groups in the critical condition (M = 4.92, SD = 0.72), $F(1, 16) = 0.03$, *ns*.

As an alternative manipulation check, we conducted an analysis of discussion content to see whether discussions in the critical group norm condition were more contentious than discussions in

[2] There is a risk associated with this procedure: Making all information shared during the discussion could mean that all groups make the correct choice (Stasser & Titus, 1987), making it impossible to test our hypotheses. An additional pilot study (with 8 groups of 4 participants) showed that this would not happen, however. Groups are quite reluctant to challenge the consensus, even if evidence is readily available to do so. Using the same materials as in the studies reported, the prediscussion decisions based on *incomplete profiles* were that 3% of participants made the correct choice for Candidate A and that 94% preferred Candidate B, who appeared to be the best choice. This result confirms that the profiles worked as designed. After having been given the *complete profiles* and after group discussion, decision quality improved such that 50% of groups made the correct decision, leaving plenty of room for the increases or decreases in decision quality we aimed to investigate.

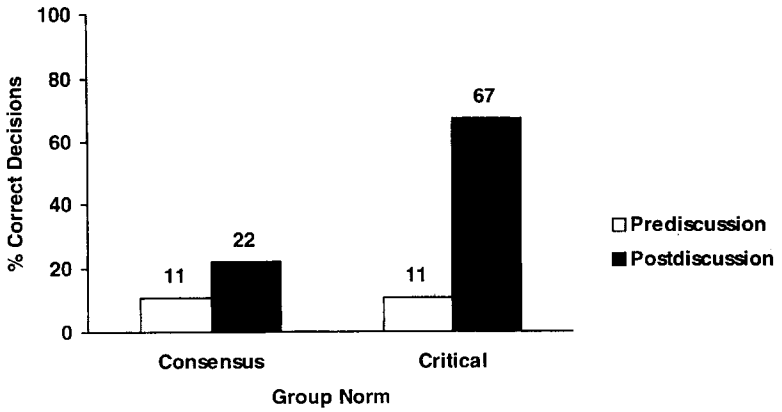

Figure 1. Impact of group norms on pre- and postdiscussion decision quality, Study 1.

the consensus norm condition.[3] Two independent coders read the discussion logs and tagged each contribution that contained criticism of or explicit disagreement with a preceding contribution or a group member (criticism) and each contribution that contained friendliness toward or explicit praise of a preceding contribution or a group member (friendliness). Ratings revealed 94% agreement, and coders resolved their disagreements. Group totals of the number of critical and friendly contributions were computed, corrected for the total number of contributions per group, and compared across conditions. For the number of critical contributions, the condition effect was reliable: Groups in the critical norm condition made more critical contributions ($M = 3.41$, $SD = 2.81$) than did groups in the consensus norm condition ($M = 1.12$, $SD = 1.19$), $F(1, 16) = 7.01$, $p = .02$. The reverse was found for the number of friendly contributions: Groups in the consensus norm condition made more friendly contributions ($M = 7.60$, $SD = 5.49$) than did groups in the critical norm condition ($M = 5.95$, $SD = 9.02$), $F(1, 16) = 5.10$, $p = .04$.

Group decisions. Group decisions were analyzed in a 2 (group norm condition) × 2 (pre- vs. postdiscussion decision) analysis of variance (ANOVA) with repeated measures on the last factor. Scores on the prediscussion and postdiscussion decisions were recoded such that 1 referred to a correct decision (Candidate A), and 0 to an incorrect decision (Candidate B or C), and were then averaged at the group level. Analysis confirmed the predictions: the two-way interaction between group norm and the pre- to postdiscussion decision changes was reliable, $F(1, 16) = 4.57$, $p < .05$. As can be seen in Figure 1, 11% of group members in the consensus norm condition decided to choose the best candidate prior to group discussion, and this increased to only 22% correct after discussion. This improvement is not reliable, $F(1, 16) = 1.75$, *ns*. However, the groups in the critical norm condition made 11% correct decisions prior to discussion, and improved to 67% correct after discussion, a reliable increase, $F(1, 16) = 18.89$, $p < .01$.

Perceived suitability of candidates. Analyses of the perceived suitability of the objectively best candidate (A), and the candidate that appeared to be best before discussion (B), replicated the group decision results, as can be seen in Table 1. The two quality ratings were entered into a repeated measures ANOVA. Results showed a reliable Norm × Candidate interaction, $F(1, 16) = 4.33$, $p < .05$. Focused comparisons showed that groups in the consensus norm condition tended to rate Candidate A more poorly ($M = 4.22$, $SD = 1.10$) than did those in the critical condition ($M = 5.44$, $SD = 1.07$), $F(1, 16) = 5.69$, $p < .05$. Although the difference between conditions was not reliable for Candidate B, the means were in the opposite direction: B was rated more highly in the consensus condition ($M = 5.53$, $SD = 0.83$) and slightly more poorly in the critical condition ($M = 5.00$, $SD = 0.88$), $F(1, 16) = 1.70$, *ns*.

Evaluation of shared and unshared information. Overall, shared information was valued more highly than unshared information, $F(1, 16) = 8.35$, $p = .01$. This main effect of information type was qualified by an interaction with the group norm, however, as can be seen in Table 1. As predicted, there was a preference for shared information over unshared information in the consensus norm condition, compared with the critical norm condition, $F(1, 16) = 8.35$, $p = .01$. In the consensus condition shared information tended to be valued more highly ($M = 5.45$, $SD = 0.39$) compared with unshared information ($M = 4.92$, $SD = 0.33$), $F(1, 16) = 15.47$, $p < .01$. In the consensus norm condition, however, shared information ($M = 5.06$, $SD = 0.47$) and unshared information were not valued any differently ($M = 5.06$, $SD = 0.54$), $F(1, 16) = 0.00$, *ns*.

Time to consensus, satisfaction, and cohesiveness. There was a trend for groups in the consensus norm condition to need less time to reach consensus ($M = 18.11$ min, $SD = 9.65$) than did groups in the critical norm condition ($M = 26.22$ min, $SD = 9.59$), $F(1, 16) = 3.20$, $p = .09$. No differences were found in the degree to which groups were satisfied with their decisions, $F(1, 16) = 2.21$, *ns*, $p = .16$. Finally, no differences between conditions were found in the degree of group cohesiveness, $F(1, 16) = 0.27$, *ns*.

Mediation of evaluation. To test our hypothesis that differences in evaluation statistically mediate the effect of group norms on decision quality, we conducted a path analysis with a series of

[3] We thank an anonymous reviewer for this suggestion.

Table 1
Impact of Norms on Group Decision Characteristics, Study 1

Decision characteristic	Consensus (n = 9)		Critical (n = 9)	
	M	*SD*	*M*	*SD*
Suitability of candidates				
Objectively best choice	4.22	*1.10*	5.44	*1.07*
Apparently best choice	5.53	*0.83*	5.00	*0.88*
Value of attributes				
Shared	5.45	*0.31*	5.06	*0.47*
Unshared	4.92	*0.33*	5.06	*0.54*
Satisfaction with group decision	6.33	*0.22*	6.00	*0.64*
Duration of discussion (min)	18.11	*9.65*	26.22	*9.59*

Note. Standard deviations are in italics.

regression analyses (Baron & Kenny, 1986).[4] We computed two difference scores from our data, one of the rated superiority of Candidate A over Candidate B (decision quality), and the other of the value of unshared over shared information (evaluation of unshared information). The norm was contrast-coded such that 1 was a critical norm and −1 a consensus norm. The results of this analysis are summarized in Figure 2. The impact of the norm on decision quality was positive, $\beta = .46$, $t(16) = 2.08$, $p = .05$, as was the impact of the norm on the evaluation of unshared relative to shared information, $\beta = .59$, $t(16) = 2.91$, $p = .01$. When both predictors were entered into the regression simultaneously, however, the relation between decision quality and the evaluation of unshared information was highly reliable, $\beta = .84$, $t(16) = 4.62$, $p < .01$, whereas the impact of the norm was reduced to zero, $\beta = -.03$, $t(16) = 0.18$, *ns*, establishing that the independent variable has no effect when the mediator is controlled for. In addition, the reduction of the direct effect of the independent variable on the dependent variable when the mediator is taken into account, from $\beta = .46$ to $\beta = -.03$, was reliable, $t(16) = 2.49$, $p < .03$. An additional model testing the alternative mediation sequence of quality of the decision on evaluation did not reduce the effect of the norm reliably, $\beta = .27$, $t(16) = 1.76$, *ns*. Thus, the results are consistent with the hypothesis that there is mediation: Evaluation of unshared information relative to shared information appears to mediate the effect of the group norm on decision quality.

Discussion

Predictions were generally confirmed. After group discussion, groups in the consensus norm condition made poorer decisions and valued shared information more highly than groups in the critical norm condition did. Moreover, the evaluation of unshared over shared information statistically mediated the effect of the group norm manipulation on decision quality. As predicted, there was no reliable effect of the manipulation on group cohesiveness, once more suggesting that the impact of the norm manipulation on cohesiveness was descriptively small, unlike its impact on the content of group discussions.

The content of discussions revealed that, in comparison with groups in the consensus norm condition, groups in the critical norm condition were more probing, more challenging, and more investigative. This is evidenced by the use of somewhat more time to reach consensus, but particularly by the greater number of critical contributions toward each other during discussion, and the somewhat lower number of niceties that were exchanged. Nonetheless the manipulation check in the questionnaire did not confirm that the group norm was successfully induced. These two results appear to be inconsistent: The content of discussions suggests that the group norm manipulation had the intended effect, and—especially in view of the two pilot studies and other results of this study—it may be that the manipulation check failed for other reasons. For example, perceptions of the group norm may have been hindered by aspects of the computer-mediated communication. A well-known effect of these computer-conferences is that they hinder turn-taking and may therefore disrupt the natural flow of interaction (e.g., Reid, Ball, Morley, & Evans, 1997). This may have interfered with the impressions of the group and its members existing after the norm-inducing initial task (see the two pilot studies). To establish whether our assumption that we are dealing with normative processes was correct, in Study 2 we therefore sought a replication in groups that did not interact through computers.

However, the norm manipulation check may also have been unreliable because of an alternative explanation that the prior task had the effect of individually priming certain kinds of behaviors (consensual or critical). Thus, the norm manipulation may not have had an impact on the group norm at all, but on individual cognitions of the participants (e.g., Higgins, 1996, for a review). This would mean that individuals were made more critical or consensual by the group norm manipulation, and that this in turn prompted a different evaluation of shared and unshared information and influenced individuals' decisions. To rule out this alternative explanation, we conducted a follow-up study with a group decision condition (similar to Study 1, but now conducted face to face) and an individual decision condition. In this individual decision condition, participants were given the complete profiles and were asked to reconsider their decisions individually, without any group interaction. Predictions were that the group norm manipulation would improve postdiscussion decisions more if the group norm were critical than if the norm were for consensus. The effect of the group norm manipulation was predicted to occur only in the group decision condition; if decisions were made individually no effect of the group norm manipulation was expected.

Study 2

Method

Male (n = 62) and female (n = 130) undergraduates participated in exchange for course credit. They were randomly assigned to 48 groups of 4 participants. Procedures and materials were identical to those of Study 1. One major difference, however, was the design of the study: An individual control condition was added, such that the design was a 2 (group norm condition: consensus vs. critical) × 2 (decision condition: group vs. indi-

[4] Readers should take into account that path analyses are based on assumptions (such as linear relations between variables, the absence of measurement error, and the absence of feedback loops, among others) that are not always met. This means that path analyses, although suggestive of causality, are not definite proof. Hence we refer to statistical mediation here, to differentiate from true mediation, which does imply causation.

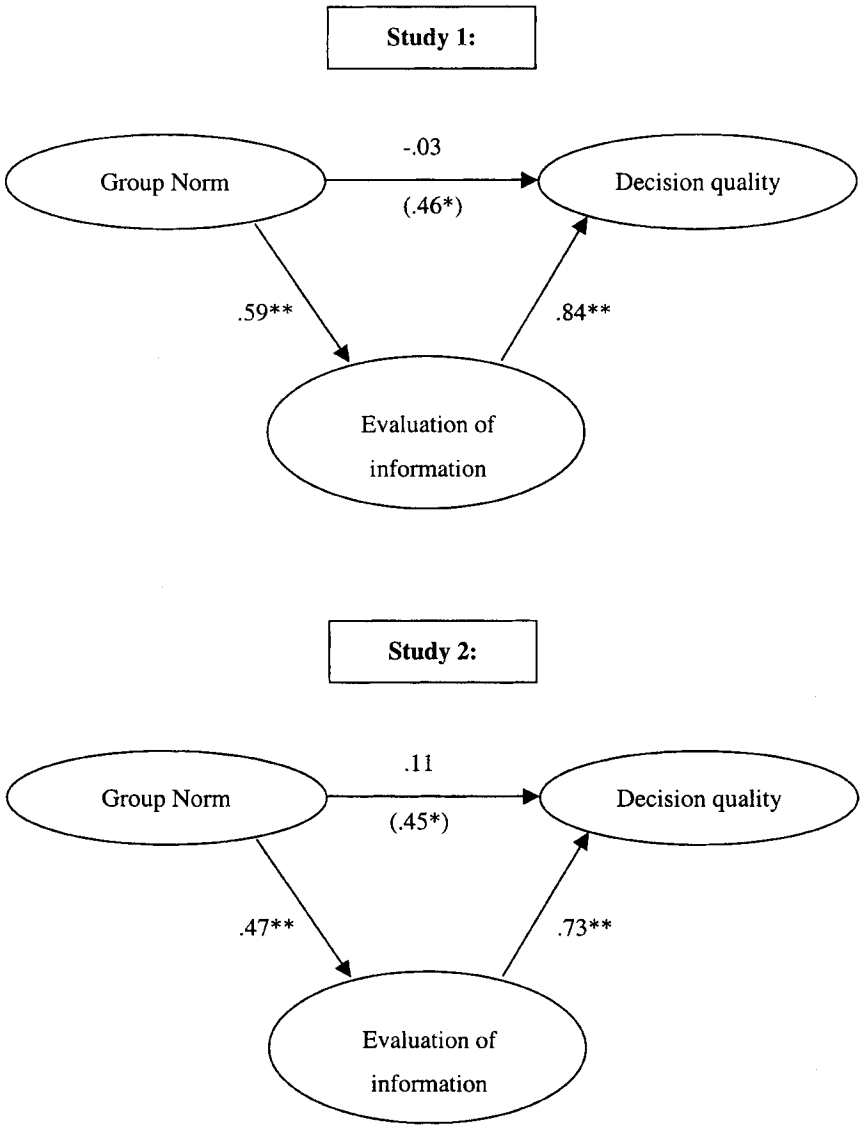

Figure 2. Path analyses: Mediation of the effect of group norm on decision quality by the evaluation of unshared information, Studies 1 and 2. * $p < .05$. ** $p < .01$.

vidual). Another difference was that discussions were conducted verbally and that instructions were given verbally by a male experimenter, while participants were seated around a large rectangular table. The group norm was manipulated as in Study 1, but decisions were made either in a group or individually. In the group decision condition, decision making was the same as in Study 1. In the individual decision condition, a similar procedure was followed, but participants had to reconsider their initial decision individually rather than in a group. In this condition, as in the group decision condition, participants were explicitly warned that the complete profiles were different, that additional information about each candidate was available and printed in bold, and they were encouraged to take ample time looking at the complete profiles. Thus, the same novel evidence was available in the group decision condition and the individual decision condition, but in the former the complete profiles were discussed in the group, whereas in the latter the profiles were reconsidered individually.

Results

Manipulation check. The manipulation check showed that the manipulation of group norm was successful. Participants in the consensus norm condition perceived their group to be less critical ($M = 4.83$, $SD = 0.52$) than did those in the critical condition ($M = 5.26$, $SD = 0.39$), $F(1, 44) = 10.11$, $p < .01$.

Decisions. Decisions were analyzed in a 2 (group norm condition) × 2 (decision condition) × 2 (pre- vs. postdiscussion decision) ANOVA with repeated measures on the last factor. Analysis revealed that predictions were confirmed: The three-way interaction between group norm, decision condition, and the pre- to postdiscussion decision changes was reliable, $F(1, 44) = 5.74$, $p = .02$. This interaction was broken down into two separate

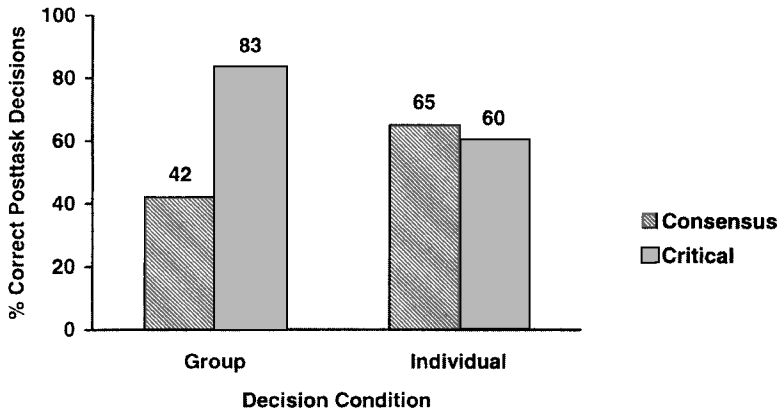

Figure 3. Impact of group norms and decision condition on postdiscussion decision quality, Study 2.

two-way analyses for pre- and for postdiscussion decisions. No reliable differences between conditions were found for the prediscussion decisions (all $Fs < 1.20$). For the postdiscussion decisions, one significant effect emerged: a reliable interaction between group norm and decision condition, $F(1, 44) = 4.66$, $p < .05$. As can be seen in Figure 3, participants in the group decision condition were responsive to the norm manipulation. After a group discussion, participants in the consensus norm condition decided on the best candidate 42% of the time, whereas the groups in the critical norm condition made 83% correct decisions, a reliable difference, $F(1, 44) = 7.71$, $p < .01$. In contrast, participants in the individual decision condition showed no such effect of the norm manipulation. After the individual reconsideration, participants in the consensus norm condition decided on the best candidate 65% of the time, and 60% of participants in the critical norm condition made correct decisions, $F(1, 44) = 0.08$, *ns*.

Perceived suitability of candidates. Analyses of the perceived suitability of the best candidate and the candidate that appeared best before discussion replicated the results for decisions, as can be seen in Table 2. Results showed a reliable Decision Condition × Norm × Candidate interaction, $F(1, 44) = 4.67$, $p < .05$. To describe this interaction, we broke it down into separate two-way interactions for the group and the individual conditions. Groups in the group decision condition were responsive to the norm manipulation. After group discussion, participants in the consensus norm condition preferred Candidate B (the wrong choice, $M = 5.29$, $SD = 0.74$) over Candidate A (the right decision, $M = 4.81$, $SD = 1.05$) when compared with participants in the critical norm condition, who showed the opposite tendency of preferring A ($M = 5.54$, $SD = 0.79$) over B ($M = 4.60$, $SD = 0.79$), $F(1, 44) = 6.93$, $p = .01$. Conversely, in the individual condition, the group norm had no reliable impact on decision making ($Fs < 0.71$). The only reliable difference for groups in the individual condition was that overall, the best candidate was preferred ($M = 5.37$, $SD = 0.70$) over the poorer candidate ($M = 4.48$, $SD = 0.64$), $F(1, 44) = 10.82$, $p < .01$.

Evaluation of shared and unshared information. The three-way interaction between group norm, decision condition, and shared versus unshared information evaluation was reliable, $F(1, 44) = 4.13$, $p < .05$. As in the previous analysis, we broke the interaction down into separate two-way analyses for the group and the individual decision conditions. Again, in the group decision condition there was a reliable interaction between the group norm and the valuation of shared and unshared information $F(1, 44) = 8.34$, $p < .01$. Participants in the consensus norm condition valued the shared information more ($M = 5.26$, $SD = 0.39$) than unshared information ($M = 4.91$, $SD = 0.36$), $F(1, 44) = 14.20$, $p < .01$. Participants in the critical norm condition showed no such

Table 2
Impact of Norms and Decision Condition on Decision Characteristics, Study 2

	Group				Individual			
	Consensus ($n = 12$)		Critical ($n = 12$)		Consensus ($n = 12$)		Critical ($n = 12$)	
Decision characteristic	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Suitability of candidates								
Objectively best choice	4.81	*1.05*	5.54	*0.79*	5.35	*0.76*	5.38	*0.64*
Apparently best choice	5.29	*0.74*	4.60	*0.79*	4.35	*0.76*	4.60	*0.51*
Value of attributes								
Shared	5.26	*0.39*	5.01	*0.31*	5.28	*0.26*	5.31	*0.22*
Unshared	4.91	*0.36*	5.04	*0.32*	5.09	*0.20*	5.13	*0.26*
Satisfaction with group decision	6.19	*0.39*	5.88	*0.64*	5.31	*0.51*	5.29	*0.61*

tendency. They valued the unshared information (M = 5.04, SD = 0.32) no differently than shared information (M = 5.01, SD = 0.31), $F(1, 44) = 0.20$, *ns*. In contrast, participants in the individual decision condition did not appear to be responsive to the norm manipulation ($Fs < 0.33$). The only reliable difference for the groups in the individual decision condition was that overall shared information (M = 5.30, SD = 0.24) was preferred over unshared information (M = 5.11, SD = 0.23), $F(1, 44) = 8.04$, $p < .01$.

Satisfaction and cohesiveness. With regard to satisfaction with the decision, the only reliable effect was a main effect of decision condition. The participants in the group decision condition were more satisfied (M = 6.03, SD = 0.54) with their decision than were the participants in the individual decision condition (M = 5.30, SD = 0.55), $F(1, 44) = 21.47$, $p < .001$. Finally, no differences between conditions were found in group cohesiveness (all $Fs < 1.18$).

Mediation of evaluation. As in Study 1, we examined whether the evaluation of information statistically mediated the effect of the group norm on decision quality. Because there was no reliable effect of the group norm on decision quality in the individual decision condition, we only examined mediation for the group decision condition. The results of this path analysis are displayed in Figure 2. As hypothesized, the norm predicted decision quality, $\beta = .45$, $t(22) = 2.37$, $p < .05$, and the evaluation of unshared information, $\beta = .47$, $t(22) = 2.47$, $p < .05$. When both predictors were entered into the regression simultaneously, the relation between decision quality and the evaluation of unshared information was highly significant, $\beta = .73$, $t(22) = 4.82$, $p < .001$, whereas the impact of the norm was no longer reliable, $\beta = .11$, $t(22) = 0.72$, *ns*, establishing that the independent variable had no effect when the mediator was controlled for. The reduction of the direct effect of the independent variable on the dependent variable when the mediator was taken into account, from $\beta = .45$ to $\beta = .11$, was reliable, $t(22) = 2.35$, $p < .03$. The reverse model did not reduce the effect of the group norm. Again we may conclude that our prediction is supported: Results are consistent with the possibility that evaluation of unshared information relative to shared information mediates the effect of the group norm on decision quality.

Discussion

Results in the group-discussion condition were identical to those in Study 1, but, in contrast to the earlier study, the prediction that a group norm would be perceived was confirmed. Thus, the impact of the prior norm-inducing task of putting together a poster, or discussing a policy proposal, can be felt in a group discussion such that people in both conditions have different perceptions of their group. Moreover, the consensus norm groups value shared information more highly, whereas critical norm groups value unshared information relatively more highly. Results support the suggestion that the evaluation of information is important in determining the decision quality: The more groups value unshared information relative to shared information, the better their decisions. Indeed, this is an understandable outcome if one considers that in the paradigm used, unshared information is critical for reaching correct decisions.

In contrast to the group decision condition, in the individual decision condition the group norm manipulation had no impact on the evaluation of shared and unshared information and no impact on the quality of decisions made. Thus, it appears that the impact of the group norm manipulation was restricted to group discussions and did not affect individual decision making. This is consistent with the explanation that the group norm induced through a prior task had an effect on the subsequent group process, and that this is what made group decisions worse or better. This result also rules out alternative explanations of these findings that suggest that the group norm manipulation could have had an effect on individual decision making. Thus, we may conclude that the quality of decisions in these studies was not merely influenced by individual cognitions, but that decisions depended on the interaction between group members in a prior task and during the actual decision making.

General Discussion

Results of two studies and pilot research confirm the prediction that group history affects the formation of group norms, and that these norms have a substantial impact on the quality of group decisions. A prior group task of putting together a poster or having a brief discussion about a policy proposal had marked impacts on subsequent group decisions despite the fact that the two tasks were unrelated.[5] Specifically, it appeared that critical group norms developed during the prior task improved the quality of decisions, but that consensus norms did not do so reliably. The improvement in the critical norm condition is especially notable in view of the difficulty researchers have had in promoting correct decisions in this paradigm (see Wittenbaum & Stasser, 1996). Perhaps just as remarkable, however, is the failure of those in the consensus condition to use available information, given the procedure followed: Every group was given the information needed to make a good decision when they entered the group-discussion phase, with new information printed in bold. Nonetheless, only critical groups made use of previously unshared information, whereas consensual groups persisted in their preferences on the basis of shared information.

Results suggest that the process underlying the ability of groups to reach correct decisions in this paradigm may be the evaluation of shared and unshared information. It appears that the reason for the faulty decisions in the consensus groups is that these groups attributed too much value to items of information that were known all along to all group members. Thus, consensus groups were relatively conservative in accepting new evidence and cautious about challenging the value of shared information. This phenomenon speaks to the importance of group norms for how information is dealt with in groups. Specifically, results suggest that informational influence and the careful examination of pieces of evidence may be found in groups that have norms promoting this. What is interesting about the present demonstration is that it highlights that independent and critical thought may be a property of groups that would appear to be equally cohesive in comparison with groups that are more consensus oriented.

[5] Analyses were conducted at the group level. This seriously reduces statistical power, ensuring that any reliable effect needs to be more than moderately strong, namely $r > .40$ for Study 1 and $r > .35$ for Study 2.

In sum, we suggest that group cohesiveness itself was not the cause of groups' preference for consensus: The content of norms moderated the success of groups in dealing with this task, not the strength of members' ties with the group. Cohesiveness may certainly strengthen the grip of group norms, but a group is able to influence its members in many ways. On the present evidence the group is not merely capable of inspiring the seemingly unthinking and slavish pursuit of a collective idea, but also capable of motivating the critical and rational consideration of decision alternatives. Thus, cohesion is not necessarily part of the group's problem; it may also be part of the solution.

An alternative explanation for these findings may be based on individual cognitive processes. It may be argued that the prior task had an impact on individual cognitive orientations in a similar way as priming manipulations have on judgment tasks (Higgins, 1996; Srull & Wyer, 1979). Thus, the prior task of engaging in debate (or making a poster) made participants more cognitively critical and stimulated their independence of thought (or made them more consensus seeking). If this were correct, participants in the critical condition should have been more independent in their thought processes, and therefore arrived at the correct conclusion because of individual scrutiny of the evidence. We believe, however, that this alternative explanation is unlikely for several reasons. One is that our dependent measures do not support this explanation. In two studies and two pilots, no differences were found in the degree to which participants saw themselves as independent from the group (i.e., group cohesiveness did not vary between conditions). Therefore there is no support for the suggestion that the critical norm manipulation affected group members' propensity for individualism, in making them critical and independent as individuals. Moreover, Study 2 shows that group discussion is a prerequisite for the group norm to have an effect. If there is no group discussion, the group norm exerts no influence on individual decision making, and this is unlike the normal effect of priming manipulations (cf. Higgins, 1996; Srull & Wyer, 1979).

With respect to Stasser and Titus's (1985, 1987) biased sampling model, the present findings suggest a useful addition. It is clear that prior tasks may influence the quality of decisions in this modified paradigm, and it would be interesting to follow this study up in the original paradigm, where participants have to fend for themselves and find ways to pool what is unshared and critical for correct decisions. It would be logical to predict that the results would not differ from the present findings very much. Does this mean that the biased sampling model is on the wrong track with its analysis of biased sampling effects in terms of a priori availability? We think it is not, and believe that our results should be seen as an addition to this model rather than a refutation. For one thing, availability and social norms can coexist, and both probably play a role in explaining the phenomenon of biased sampling and variations in its strength. Moreover, it should be pointed out that because of the modifications in the paradigm made in the present research it would be wrong to conclude that biased sampling disappears in groups with critical norms. Ultimately the matter of whether certain group norms may minimize or nullify the biased sampling effect is an empirical one, but on the basis of the robustness and strength of this phenomenon in laboratory (cf. Wittenbaum & Stasser, 1996) and real-world contexts (e.g., Larson et al., 1998), we anticipate that biased sampling will continue to exert an influence—no matter how critical the group's norms may be.

Beyond the importance of group norms, however, our findings introduce a determinant of decision quality in biased sampling contexts that has not yet been widely acknowledged (but see Larson et al., 1994; Stasser, 1992). Previous research has demonstrated that the degree to which unshared information is mentioned during the discussion is generally a good predictor of the ultimate decision quality (e.g., Larson, Christensen, et al., 1998; Stasser & Stewart, 1992). In addition to this, present findings confirm that the perceived relative value of unshared and shared information is also a very strong predictor of decision quality, predicting as much as 53% to 71% of the variance in postdiscussion preferences for the best candidate over the second-best one. These strong relations were obtained despite the fact that these variables were operationalized quite differently, one being a general preference for candidates, the other being the average value participants gave to the attributes of candidates. As such, this result suggests that it may be beneficial for future researchers of biased sampling to explore the factors that influence the perceived value of shared versus unshared information. This conclusion seems especially relevant for perspectives on information processing in groups, such as persuasive arguments theory (Burnstein & Vinokur, 1977), and more recent information processing perspectives (see Hinsz, Tindale, & Vollrath, 1997, for a review), which could take into account that the value of information, in addition to its availability, encoding, storage, and retrieval, is important for determining the outcome of a group decision process. The present findings show that the value of information depends at least in part on group norms. We venture that in addition to this, the value of information changes each time a new piece of evidence is brought to discussion or an old piece is reiterated. All this implies that even if group members share all information, they may not necessarily arrive at a decision that would—to an outsider—appear correct or optimal.

The findings also speak to the importance of the process of consensual validation for group outcomes. A noteworthy result of both studies is that participants valued information more highly if it was shared among all in the group, even though shared information is less critical for reaching a correct decision in this paradigm. This finding is consistent with the idea that subjective validity of information is achieved when this information is consensual in the sense that it is available to all (Asch, 1952; Turner, 1991). This indicates that the perceived validity of information in a group context is in part socially established, especially if consensus is an important factor for group members. It should be noted that it is also possible that differential familiarity with shared and unshared information may have contributed to the higher evaluation of shared information. However, such differences in familiarity cannot account for the finding that the value of shared information was especially high when group norms were consensual. When it is the norm to strive for consensus, it appears that groups attach less value to the unique contributions of each individual than to the commonly available information and expertise in the group.

More generally, the present results speak to the fruitfulness of considering the nature of a group in attempts to improve group decision processes and decision quality. Much has been learned in the past decades about the impact of factors such as decision rules and group composition on group decision processes (e.g., Davis,

Holt, Spitzer, & Stasser, 1981; Kaplan & Miller, 1987; Kerr et al., 1976; Miller, Jackson, Mueller, & Schersching, 1987; Nemeth, 1981; Tindale & Davis, 1985). Likewise, expertise and experience are important in shaping group process and decision outcomes (e.g., Insko et al., 1983; Kerr, 1981; Stewart & Stasser, 1995). The present findings highlight the importance of additional antecedents at the group level in shaping group process and decisions in a subsequent unrelated task. We propose that this group history has an impact equivalent to that of decision rules and setting the nature of a task (cf. Laughlin, 1980; Stasser & Stewart, 1992), in part because a group's history may shape norms that influence a group's approach to tackling a problem. An important difference, however, is that in the case of norms the nature of the task is not so much defined by contextual demands (such as experimenter instructions) as by the demands induced and imposed by the group itself.

One aspect of the present findings emerges when comparing the results of the two studies: The overall quality of group decisions is greater in Study 2 compared with Study 1. This finding corroborates results obtained by McLeod et al. (1997), who suggested that although the use of computer systems such as in Study 1 may enhance the likelihood of pooling of unshared information (e.g., Lam & Schaubroeck, 2000), this need not translate into better decision making (see also Hollingshead, 1996). However, although there appears to be a main effect of medium across studies, results also show that the degree to which unshared information is influential is moderated by the nature of group norms. As such, the present findings support suggestions that anonymity in general does not preclude social influence in groups (Postmes & Spears, 1998). Indeed, several studies have shown that anonymous computer-mediated communication may serve as a vehicle for strong normative influence in groups (Postmes, Spears, & Lea, 1998, for a review).

Finally, these results add a further remedy for groupthinklike phenomena to those proposed by Janis (1982). The results suggest that a drive for consensus is not an inevitable consequence of cohesiveness, but that the content of norms moderates this effect. Thus, of the factors that have been hypothesized to be the basis of the groupthink phenomenon, cohesiveness may not be as central as it appears. Rather than cohesiveness being unproductive and dangerous per se, cohesiveness probably has the effect of enhancing the norms within the group that may be more or less conducive to good decision making. Therefore a useful strategy for countering groupthinklike phenomena would be to expose group norms and, if necessary, attempt to transform them, should they place deleterious demands on group members to comply. In addition, it is worthwhile to point to the desirable aspects of reaching consensus within a group. The properties of the biased sampling paradigm are such that the pursuit of consensus is undesirable, because this will interfere with the quality of group decisions. However, there are numerous settings in which consensus is a highly desirable and sought-after outcome for groups (Haslam, 2001).

In sum, the present findings offer some insight into what may be considered a paradoxical effect of group norms. Cohesiveness is generally associated with normative pressures to conform, and hence with a drive for consensus and unanimity that implies intolerance toward dissent and intellectual independence of group members (e.g., Deutsch & Gerard, 1955). Indeed, in the literature it is often assumed that convergence of thoughts within the group implies conformity and normative influence, whereas divergence of thoughts is associated with the destruction of group unity (Hinsz et al., 1997, for a review). However, this analysis disregards the content of group norms that may make group members express their allegiance to the group not just by conforming and striving for consensus, but sometimes through independent and critical thought. We therefore suggest that cohesiveness may reinforce the normative influence in a group and thereby exert an influence on group members to think independently and to engage in conflict and discord, if those are the salient group norms. In such a context, independence may paradoxically reflect and even reinforce the unity of the group as well as contribute to its efficiency.

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