

Because I'm worth it! (More than Others...)

Cooperation, Competition and Ownership Bias in Group-Decision Making

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Word count: Abstract = 114; Text + Footnotes = 4008

Abstract

In group decision-making, people take insufficient account of other's information. We hypothesize that this can be explained by an ownership bias that would especially occur in competition, rather than in cooperation. In a two-phase decision making situation, people reach an initial decision and then they evaluated the value of their own information and other's consistent and inconsistent information under different conditions of goal interdependence (cooperation or competition). Finally, then had to reach a final decision regarding a road accident. Results showed an ownership bias in information value, stronger in competition than in cooperation. Moreover, decision quality was lower in competition than in cooperation, an effect mediated by the ownership bias, beyond the preference effect.

Keywords: ownership bias, preference effect, information value, cooperation vs. competition, decision making.

Making optimal group decisions is of paramount importance in organizational, political and educational settings, but empirical research has documented that this seldom occurs. Making optimal group decisions is hampered because people take insufficient account of unshared information (information that some members possess, but not others) even when this information is critical for an optimal decision (Larson, Foster-Fishman, & Keys, 1994). Recent evidence suggests that this may be due to a biased evaluation of unshared information (Mojzisch, Grouneva, & Schulz-Hardt, 2010). Two biases in the evaluation of unshared information have been identified in the literature. First, people evaluate their own information more favorably than others' information (an effect called "ownership bias"; Van Swol, Savadori, & Snizek, 2003). Second, when considering others' information, people favor information that is consistent, rather than inconsistent, with their initial preference (an effect called "preference effect"; Greitemeyer & Schultz-Hardt, 2003).

Although these evaluation biases have been investigated in several studies, most of them overlooked the interdependence among group members that is typical of group decisions, namely the fact that people can work cooperatively, but also competitively (Wittenbaum, Hollingshead, & Botero, 2004). Recent research has shown that it is especially in competitive, more than cooperative decision-making settings that group members overestimate confirmatory information (Toma & Butera, 2009). This research also shows that this behavior results in reduced quality of decision making. The aim of the present article is to investigate the moderating role of cooperation, competition on the ownership bias. We test the hypothesis that the ownership bias could explain suboptimal group decision in competition as compared to cooperation, beyond the preference effect.

Ownership Bias and Preference Effect

Research has long shown that people evaluate themselves more favorably than others (e.g., Brown, 1986). This research has pointed to a number of self-other biases, such as the fact that people believe that they are happier, more intelligent, and less prejudiced than others (McFarland & Miller, 1990), and generally better than the average others (Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995). Also, people tend to emphasize the difference between themselves and others when they are asked to judge their lives (Krueger & Heckhausen, 1993), their future (Heckhausen & Krueger, 1993) or their personality (Alicke et al., 1995). They quickly and effortlessly develop ownership of their arguments, which become part of the extended self and therefore overevaluated (De Dreu & van Knippenberg, 2005). People more easily recall their own contribution to a joint product than those of others (Ross & Sicoly, 1979) and the increased accessibility of one's own contribution causes its favorable evaluation (Roese & Olson, 1994).

In group decision making, Chernyshenko, Miner, Baumann, and Snizek (2003) described a specific form of self-other bias, the ownership bias, and suggested that if members do not take into account other's information, it is because they simply give more value to their own information compared to other's information. In one study with real group discussion, they found that participants judged their own discussed unshared information as more important than other's discussed unshared information. Van Swol et al. (2003) also found that participants have an ownership bias toward rating information they received before the group discussion (own information) as more valid and familiar than information not received (other's information). More recently, Mojzisch et al. (2010) replicated the ownership bias and showed that the quality of own information was perceived as higher than the quality of information added by the other group members. These authors also made a distinction between other's information that was

consistent or inconsistent with participants' initial preference. This distinction revealed that that ownership had an effect on information evaluation for preference-consistent information, but not for preference-inconsistent information.

This distinction is important because research on confirmation bias has found that people have a preference for information that confirms their initial opinion compared to information that disconfirms it (for review see, Frey, 1986). Greitemeyer and Schulz-Hardt (2003) examined how this bias affects information evaluation in group decision making. In their research participants only received part of the unshared information and were asked to form an initial opinion about the best candidate for a managerial position. After making this decision, participants individually read a transcript of a group discussion in which they received the full set of information. Despite learning all the information, participants maintained their initial preference and failed to solve the decision problem. The authors found that the confirmation bias was responsible for this effect: participants evaluated the information consistent with their initial preference as more important than information inconsistent with their initial preference

What are the implications of these findings for the ownership bias? If people favor consistent over inconsistent information (Greitemeyer and Schulz-Hardt, 2003) then evidence for a real ownership bias would require that people evaluate their own information as superior to others' both consistent and inconsistent information. Simply giving more weight to one's own information compared to others' inconsistent information would reflect that people prefer consistent over inconsistent information (the preference effect). The study of Mojzich et al. (2010) found an ownership bias for the consistent information, but not for the inconsistent information. How this results could be explained? If the ownership bias consists in that people favor own over others' information, shouldn't we expect people to evaluate own information as superior to both consistent and inconsistent information coming from others?

We argue here that the extent to which people favor one type of information over the other should depend on goals people pursue during the interactions with the others. People might not always favor consistent over inconsistent information (as in Greitmeyer and Schulz-Hardt, 2003), and might not always favor their own information over that of the others (as in Van Swol et al., 2003). When in decision making situations members pursue cooperative goals they may value others' inconsistent information and therefore a preference effect and an ownership bias for consistent information are less likely to occur. This should not be the case when members pursue competitive goals. We argue that it especially in competition, more than in cooperation, that people exhibit these biases in information evaluation.

Cooperation, Competition and Information Evaluation in Decision Making

When making decisions with others, people can work cooperatively, but also competitively (Wittenbaum et al., 2004). Indeed, various competitive goals (desire to attain a high status, proving competence) can arise in group-decision making and affect processing of information needed for an optimal decision (Davis, Laughlin, & Komorita, 1976; De Dreu & Carnevale, 2003). Recent work showed that taking into account whether the setting is cooperative or competitive offers a better understanding of real-world processes involved in decision making and information processing (De Dreu, Nijstad, & van Knippenberg, 2008; Toma & Butera, 2009).

In particular, Toma and Butera (2009) showed that competition, more than cooperation, leads members to avoid inconsistent information in real group discussions, which in turn impairs decision making. In the specific case of the preference effect, Toma, Gilles and Butera (2011) used a paradigm similar to the one of Greitmeyer and Schulz-Hardt (2003) and found that people favored consistent over inconsistent information in competition, while the reverse was found in cooperation. Moreover, the preference effect was responsible for low-quality decisions in competition, compared to cooperation. Thus, the tendency to prefer consistent information and

to avoid inconsistent information appears to be more pronounced in competitive settings. The present research aims to provide evidence that competition, more than cooperation, also elicits higher levels of ownership bias, which should in turn result in lower achievement in decision making.

Two lines of research support the above hypothesis. On the one hand, research on self-other bias suggests that this bias can be moderated by dispositional and situational factors (Dunning, Meyerowitz, & Holzberg, 1989). For instance, it has been shown that biases in favor of self can be moderated by the level of narcissism (John & Robins, 1994), by the relative closeness between self and others (Sedikides, Campbell, Reeder, & Elliot, 1998) or by a self-evaluation threat (Muller & Butera, 2004). In particular, Muller and Butera (2004) showed that the self-other bias tends to be higher when there is a threat on self-evaluation, than when this threat is absent. Competition implies a “threat-rigidity reasoning”, whereby people are focused on their own mindset, opinion or information (De Dreu & Nijstad, 2008). Competition also implies that one has to show s/he is better than others to obtain some outcome. When one has to prove oneself in front of others, this might impose a self-evaluative threat (Dickerson, Gruenewald, & Kemeny, 2004). As a consequence, in competition, people might tend to enhance the value of their own information over that of others.

On the other hand, research on goal interdependence suggests that negative interdependence (i.e., competition) is associated with negative judgments of others' positions and information (Johnson & Johnson's, 1989, 1995). Under cooperation, information given by others can be trusted because cooperation is beneficial to all (e.g. Buchs, Butera, & Mugny, 2004); under competition information given by others is perceived as suspicious because thought to serve personal gain and power (De Dreu et al., 2008). Research suggests that if, in a given context, a self-other bias occurs, this could be due to the enhancement of the self, the

diminishment of others or both (Krueger, 1998). In line with this idea, research on achievement goals suggests that competitive goals are associated with the enhancement of self-competence and the disdain of the partner's competence (Darnon, Muller, Schrager, Panuzzo, & Butera, 2006). When people are motivated by competition, they are concerned with their own contribution and seek to differentiate from the others (Campbell & Sedikides, 1999).

In sum, several lines of research support the hypothesis that the ownership bias should be stronger in competition than in cooperation (*Hypothesis 1*). In other words, we expect that other's information is judged less valuable than one's own more in competition than in cooperation. As pointed out earlier, if the ownership bias consists in that people favor own over others' information, the critical test of the ownership bias is to find that people evaluate own information as superior to both consistent and inconsistent information coming from others, and not to consistent information only, which would be a preference confirmation bias. Thus, the interaction effect predicted by hypothesis 1 should be due to the fact that people evaluate own information as superior to both consistent and inconsistent information coming from others under competition, which should not be the case under cooperation (*Hypothesis 2*). Indeed, inconsistent information provided by others is extremely valuable in decision making in general and in hidden profiles in particular, as it allows to rule out sub-optimal solutions (e.g. Toma & Butera, 2009). Under cooperation, people should be able to recognize the value of inconsistent information and therefore the ownership bias should occur for consistent, but not for inconsistent information (as in Mojzich et al. (2010)). Finally, we hypothesize that the ownership bias should account for the negative impact of competition, as compared to cooperation, on decision quality beyond the preference effect (*Hypothesis 3*).

Method

Participants and Design

Fifty undergraduate students from a French-Speaking Swiss University volunteered in this study. The sample included 24 women ($M = 22.6$ years, $SD = 3.24$). Preliminary analyses revealed that gender did not influence our dependent variables and was thus discarded from analyses. Participants were randomly assigned to one of two experimental conditions (cooperation vs. competition).

Procedure and Materials

We used the same procedure as Greitemeyer and Schulz-Hardt (2003): Participants studied a decision case individually and then they received additional information from two fictitious group members. More specifically, participants worked individually on a decision-making task concerning a road accident investigation. They were led to imagine a situation of informational interdependence with two fictitious partners. Participants were informed that neither they, nor the two partners received the entire information needed to make an optimal decision. Participants were told that their task was to work as police inspectors in order to identify the person responsible for the accident. In this road accident, four persons were potential suspects, but based on a set of 9 clues, three of them could be exonerated (Mr. X, Mrs. Y, Mr. Z) and the fourth (Mr. X's son) incriminated. These information clues were critical as they were all necessary in identifying the guilty person in the accident (correct decision). All participants received the same set of information containing only three of the nine critical clues. These three clues were designed to lead to the initial solution of Mr X being responsible (incorrect decision). Participants were informed that the remaining 6 critical clues were distributed to their two partners. They first had to form an initial opinion about the guilty person in the accident before being given the remaining cues. The goal interdependence (cooperation, competition) manipulation was then introduced. In *cooperation*, participants were informed that a successful ending of the investigation would bring a very promising promotion to the team (superior

position of the team in the police station) and that each one should strive to find the correct solution. In *competition* participants were informed that beyond the team promotion, one of them could obtain a very promising individual promotion (becoming the superintendent), if he/she is the first one in the groups who finds the correct solution. Then, they were provided with a discussion protocol corresponding to the group interaction between themselves and the two fictitious partners. In this discussion protocol, the sets of information from the two partners and thus the 9 critical clues (self and others' information) were presented. Participants were given no information about others' initial opinions.

Information evaluation. Then, participants evaluated to what extent each of the nine items of information was important to reach the optimal decision, on a scale ranging from 1 (*not at all important*) to 9 (*very important*). These items of information can be distinguished in terms of source: three given originally to the participants (thereafter referred to as own information) and six given originally to the two other group members (thereafter referred to as others' information). Own and others' information were presented in a random order for each participant. Others' information can be distinguished in terms of consistency with participants' initial preferences. Three items support participants' initial opinion and are thus consistent with own information ($\alpha = .72$) and three items do not support participants' initial opinion and are thus inconsistent with own information ($\alpha = .78$).

Final decision. Once participants had evaluated all pieces of information, they were asked to indicate their final decision concerning the person responsible for the accident (coded 1 for correct decision - Mr. X's son; and 0 for incorrect decision - Mr. X, Mrs. Y or Mr. Z).

Manipulation checks. Finally, all participants were asked how tense would have been the climate in a real group interaction on 9-point scales ranging from 1 (*not at all*) to 9 (*yes, definitely*). At the end of the experiment, the experimenter thanked the participants, explained the

purpose of the experiment, and asked them not to discuss the experiment with any potential future participants.

Results

Manipulation Checks

As it could be expected, participants rated that the climate would be tenser in competition ($M = 6.76$, $SD = 1.59$) than in cooperation ($M = 5.12$, $SD = 2.49$), $F(1, 48) = 7.71$, $p < .01$, $\eta_p^2 = .14$.

Information Evaluation

Information evaluation was analyzed with a 2 goal interdependence (cooperation, competition) X 3 information type (own, other consistent, other inconsistent) mixed-ANOVA with information type as repeated measure with three levels. The within-participant factor yielded a significant effect, $F(1, 47) = 16.04$, $p < .001$, $\eta_p^2 = .41$. Own information ($M = 6.78$, $SD = 1.41$) was evaluated more favourably than others' consistent information ($M = 5.29$, $SD = 1.86$), $F(1, 48) = 28.81$, $p < .001$, $\eta_p^2 = .36$, but also than others' inconsistent information, ($M = 5.24$, $SD = 1.62$), $F(1, 48) = 22.39$, $p < .001$, $\eta_p^2 = .32$. This main effect was qualified by the interaction with goal interdependence predicted by Hypothesis 1, $F(1, 47) = 8.03$, $p < .01$, $\eta_p^2 = .25$, illustrated in Figure 1.

We also analyzed the effect of information type separately for cooperation and competition using simple contrasts. In cooperation, own information ($M = 6.23$, $SD = 1.25$) was evaluated more favourably than consistent information ($M = 4.57$, $SD = 1.74$), $F(1, 48) = 14.95$, $p < .001$, $\eta_p^2 = .25$, but not more important than inconsistent information ($M = 5.75$, $SD = 1.54$), $F(1, 48) = 1.25$, $p = .27$. In competition, own information ($M = 7.33$, $SD = 1.36$) was evaluated more favourably than both consistent ($M = 6.00$, $SD = 1.76$), $F(1, 48) = 11.85$, $p < .01$, $\eta_p^2 = .19$,

and inconsistent information ($M = 4.76$, $SD = 1.58$), $F(1, 48) = 30.33$, $p < .001$, $\eta_p^2 = .55$. This gives support to Hypothesis 2.

Final Decision

Overall, 21 out of 50 participants found the *correct solution*. We submitted the final decision to a logistic regression. This analysis revealed that more participants chose the correct solution in cooperation ($N = 14$; 56%) than in competition ($N = 7$; 28%), Wald $\chi^2(1, N = 50) = 3.89$, $p < .05$.

Mediation Analysis

To test whether the effect of goal interdependence on the final decision was due to the ownership bias, beyond the preference effect, we conducted a multiple mediation analysis. We used bootstrapping following Preacher and Hayes (2008) and the syntax file developed by the same authors (<http://www.afhayes.com/spss-sas-and-mplus-macros-and-code.html>). This method is particularly relevant for testing the specific indirect effect of a particular mediator while controlling for the effect of other mediator(s) in the model. Moreover, this method allows estimating models with a dichotomous dependent variable.

Before computing the bootstrap, we calculated the correlations between own, consistent and inconsistent information. We found correlations of .26 ($p = .07$) between own and consistent information, -.36 ($p < .01$) between own and inconsistent information and -.52 ($p < .001$) between consistent and inconsistent information. These correlations indicated that participants did not equate consistent information received from others with their own information. We therefore used own and consistent information as mediators¹. The multiple-mediation model is depicted in Figure 2.

The total and direct effects of goal interdependence on final decision (coded 0, 1) were -.59, $p < .05$, Wald $\chi^2(1, N = 50) = 3.89$, and -.003, $p = .99$, Wald $\chi^2(1, N = 50) < 1$. The total

indirect effect through both mediators (the difference between the total and the direct effects) was $-.58$, with a bias corrected and accelerated (BCa) 95% confidence interval (CI) of -1.77 and $-.08$. Thus, the indirect effect of goal interdependence on final decision was different from 0. The direction of the paths from goal interdependence to both mediators and from mediators to final decision indicated that competition, compared to cooperation, led to higher scores of own and consistent information, which in turn led to a lower number of correct decisions. Inspection of the specific indirect effects (shown in Table 1) indicated that only own information was a significant mediator, as the 95% CI of consistent information included 0. Thus, only own information significantly contributed to the total indirect effect of goal interdependence on final decision, above and beyond the preference for consistent information.

Discussion

This study has shown that people display an ownership bias in information evaluation in a decision making setting, especially when people are motivated by competition. Previous research showed that this bias can occur in decision making situations (Chernyshenko et al., 2003; Van Swol et al., 2003), but cooperation was considered as the motivation by default in decision making settings and only little research took into account the impact of competition on information processing (De Dreu et al., 2008; Toma & Butera, 2009).

In the present research, we provide evidence that beyond the preference effect, people exhibit an ownership bias in information evaluation that is especially enhanced in competition, as shown by the interaction effect predicted by Hypothesis 1. In particular, because people prefer consistent over inconsistent information coming from others (Greitemeyer & Schulz-Hart, 2003), we decided to test the ownership bias on both consistent and inconsistent information. We found that independently of goals, own information was judged more valuable than consistent information, and apparently contrary to Mojzisch et al. (2010) we also found that own

information was judged more valuable than inconsistent information. However, in line with Hypothesis 2, simple effects revealed that own information was evaluated more favourably than both consistent and inconsistent information in competition, while in cooperation own information was evaluated more favourably than consistent information but not more than inconsistent information. Thus, the effects found by Mojzisch et al. (2010) were replicated in cooperation, while in competition the ownership bias manifested itself as a superiority of own over others' information, be it consistent or inconsistent with the participants' initial solution.

This research has a number of implications for group decision making. Group members' inability to discover hidden profiles has been attributed for a long time to group-level processes like information pooling and preferences exchange (Winkvist & Larson, 1998). Later, research have shown that in the absence of any dysfunctional group-level process, individual group members still have difficulties in detecting the best solution because they exhibit individual-level biases in information evaluation (Faulmüller, Kerschreiter, Mojzisch, & Schulz-Hardt, 2010; Van Swol et al., 2003). Our research contributes to this literature and provides evidence that the ownership bias is responsible for poor decision quality, beyond the preference effect. Moreover, the present research suggests that individual biases (ownership bias and preference effect) can be moderated by group-level processes like competition and cooperation goals. This integration suggests that the ownership bias is an important feature of group decision making, which should be taken into account in professional and educational settings.

With regard to the ownership bias, our research might suggest a motivational interpretation of this bias. We have found that an ownership bias occurred for both consistent and inconsistent information only in competition. In cooperation, people better evaluated own information compared to other's consistent information, but not to other's inconsistent information, a result also found by Mojzisch et al. (2010). Research on self-other bias also

suggest that although a pervasive effect, the self-other bias especially occurs in situations in which people feel threatened or they need to affirm their superiority. For example, in the context of social comparison has already shown that under self-evaluation threat participants exhibit a bias in the favor of self when they are afraid to be perceived as braggarts (Muller & Butera, 2004). Worded differently, prior research suggested that under threatening situations people are more willing to express their superiority. The current experiment extends this work to decision-making situations. We hypothesized and found that competition compared to cooperation enhances the value attributed to own information, with the result of reducing optimal decisions. However, an important limitation is that these studies do not provide direct evidence that participants actually experienced threat or defensive reactions in competition when they undervalued others' information. An alternative explanation could be that competition simply decreases focus on others or reduce the certainty in others' information. It could be also that people in competition are less flexible, less creative and more narrow-minded when they solve decision problems (De Dreu & Nijstad, 2008). Future research should consider both these alternatives.

Despite these limitations, this research provides, for the first time, strong evidence that in a decision making situation, people believe that others' information is less valuable than their own, especially when they are motivated by competition, and that this impairs decision making.

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Footnotes

¹ We used own information and consistent information as mediators instead of difference scores (between own and other's information for the ownership bias and between consistent and inconsistent information for the preference effect) for two reasons. First, the increased ownership bias in competition was mainly due to an increase in own information. Second, we wanted to avoid covariation by calculating the ownership bias and the preference effect as the difference between own / inconsistent information and the same consistent information. The results are similar by using own information and inconsistent information.

Table 1. Bootstrapped estimates and confidence intervals for the total and specific indirect effects of goal interdependence on decision quality.

	Estimates	SE	BCa 95% CI	
			Lower	Upper
Indirect effects				
Own information	-0.12	0.46	-1.39	-.0.12
Consistent information	-.0.02	0.31	-0.69	0.31
Total	-0.15	0.65	-1.77	-.0.08

Figure Captions

Figure 1. The evaluation of own and other's information in cooperation and competition.

Figure 2. Multiple mediation of the goal interdependence – decision quality relationship through preference for own information and preference for consistent information; * $p < .05$, ** $p < .01$, *** $p < .001$.



