

Biased Information Processing in the Escalation Paradigm: Information Search and Information Evaluation as Potential Mediators of Escalating Commitment

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Escalation of commitment denotes decision makers' increased reinvestment of resources in a losing course of action. Despite the relevance of this topic, little is known about how information is processed in escalation situations, that is, whether decision makers who receive negative outcome feedback on their initial decision search for and/or process information biasedly and whether these biases contribute to escalating commitment. Contrary to a widely cited study by E. J. Conlon and J. M. Parks (1987), in 3 experiments, the authors found that biases do not occur on the level of information search. Neither in a direct replication and extension of the original study with largely increased test power (Experiment 1) nor under methodologically improved conditions (Experiments 2 and 3) did decision makers responsible for failure differ from nonresponsible decision makers with regards to information search, and no selective search for information supporting the initial decision or voting for further reinvestment was observed. However, Experiments 3 and 4 show that the evaluation of the previously sought information is biased among participants who were responsible for initiating the course of action. Mediation analyses show that this evaluation bias in favor of reinvestment partially mediated the responsibility effect on escalation of commitment.

Keywords: escalation of commitment, entrapment, information search, information evaluation, selective exposure

In the past 30 years, extensive research has been conducted on decision makers persisting in losing courses of action despite negative feedback (Arkes & Blumer, 1985; Brockner & Rubin, 1985; Staw, 1981; Thaler, 1980). In this article, we focus on *escalation of commitment* as first reported by Staw (1976), which has been defined as a tendency to persist in a supposedly losing course of action by reinvesting time, money, or other resources. Our main goal was to experimentally test whether and to what extent biased information search and/or biased information eval-

uation in favor of the initial decision causes escalating commitment to the chosen course of action.

Because the normatively correct amount of reinvestment usually cannot be defined in typical escalation situations, empirical research on escalation of commitment usually compares reinvestments by decision makers responsible for initiating a course of action with reinvestments made by people who were not responsible for making the initial decision and who should, hence, have a more or less impartial view of the troubled situation. The fact that responsible decision makers usually exhibit higher reinvestments compared with their nonresponsible counterparts is seen as an indication of escalating commitment to the initially chosen course of action (e.g., Staw, 1976).

Escalation of commitment has been demonstrated to influence and possibly impair decision making in various domains. Prominent examples include, but are not limited to, bankers' adherence to bad loans (Staw, Barsade, & Koput, 1997), business expansions despite negative feedback from the market (McCarthy, Schoorman, & Cooper, 1993), overrating of employee performance (Bazerman, Beekun, & Schoorman, 1982), and cost explosion in investment projects (Ross, & Staw, 1986, 1993). The tendency to escalate commitment in the face of failure has been argued to be maladaptive (Brockner, 1992; Staw, 1981) because, in the worst case, persisting with a failing course of action might result in the bankruptcy of an organization or, in the case of public projects, in a massive waste of taxpayers' money. Naturally, given these risks,

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it is desirable to develop measures that prevent decision makers from escalating their commitment. However, developing effective interventions is not possible without a thorough understanding of the phenomenon itself as well as the psychological mechanisms producing or aggravating it.

Several psychological explanations for escalating commitment have been proposed, the most prominent of which are prospect theory (Whyte, 1986) and the self-justification hypothesis (Staw, 1976). According to the prospect theory explanation, responsible decision makers frame the negative outcome feedback as losses; nonresponsible decision makers, in contrast, do not apply a loss frame because they were not involved in the initial decision. This results in higher levels of risk seeking and, as a consequence, leads to higher reinvestment among responsible participants. The basic idea of the self-justification hypothesis (derived from dissonance theory; Festinger, 1957) is that decision makers who are responsible for failure feel a need to justify their initial decision. This, in turn, leads to increased efforts, such as reinvesting and persisting with losing courses of action, in order to justify prior decisions and maintain a positive self-concept.

Typical escalation situations are characterized by informational ambiguity (Bowen, 1987; Hantula & Bragger, 1999; Staw & Ross, 1987); that is, performance feedback for the project in question is below expectations but not to the extent that withdrawal is the obvious solution. Whereas most of the research on escalating commitment requires decision makers to decide about reinvestment solely on the basis of the monetary performance feedback, most real-life reinvestment decisions are unlikely to be made exclusively on the basis of such outcome feedback. Instead, decision makers facing uncertainty can (and usually will) acquire additional information such as sales forecasts, expert advice, or internal analyses of the reasons for the suboptimal performance to be better able to interpret the negative feedback (cf. Dahlstrand & Montgomery, 1984; Fleishman et al., 1991; Huber, Wider, & Huber, 1997). For example, such additional information could indicate whether the questionable performance of a project is indeed temporary, thus justifying continued investments, or stable, thereby implying withdrawal. We already know that decision makers are willing to pay for expert advice in order to reduce uncertainty and increase decision quality (Gino, 2008; Sniezek, Schrah, & Dalal, 2004). Likewise, there are some findings in research on escalating commitment showing that providing additional information unambiguously indicating failure of the project leads to reduced escalation of commitment (e.g., Bragger, Hantula, Bragger, Kirnan, & Kutcher, 2003)—hence, we also know that decision makers take such additional information into account when making reinvestment decisions if they have the opportunity to do so. However, we do not know how they search for such information and how they evaluate it, and we also do not know how these processes might affect escalating commitment. The present research is aimed at addressing these questions.

With regard to information processing in escalating commitment situations, we focus on an aspect that we consider particularly relevant, namely, whether information search and/or information evaluation are biased in favor of reinvestment (or against reinvestment) or not. A biased information search in favor of reinvestment would mean that decision makers predominantly search for information that supports reinvestment, as compared with information arguing for withdrawal. Similarly, a biased eval-

uation of the information sought by the decision maker would mean that information in favor of reinvestment is seen as being more accurate or more important than information in favor of withdrawal. If such biases occur, they should promote escalation.

Biased Information Search in Escalating Commitment

Research on selective exposure to information—rooted in cognitive dissonance theory—shows that, under certain conditions, people systematically seek more information supporting their opinion than information conflicting with it (for overviews, see Frey, 1986; Hart et al., 2009). The idea behind the selective exposure hypothesis is that information conflicting with one's opinion causes cognitive dissonance and is therefore avoided, whereas information supporting one's opinion reduces dissonance (Festinger, 1957). Necessary conditions for this information search pattern are that decision makers have voluntarily decided on the alternative chosen, that they feel committed to this alternative and, of course, that they know prior to information selection which pieces of information will support or conflict with their opinion (Frey, 1986). Given these antecedents, particularly decision makers who are responsible for initiating the chosen course of action might be subject to a bias in favor of their initial decision and, hence, in favor of reinvesting in that previously chosen alternative.

In the escalation literature, we found several authors arguing that such a biased information search has already been shown in escalation situations (e.g., Beeler & Hunton, 1997; Brockner, 1992; Dietz-Uhler, 1996; Ku, 2008; Parks & Conlon, 1990). A closer inspection reveals that this consensus is predominantly based on one single study by Conlon and Parks (1987).¹ The central finding of this study was that participants who were responsible for an initial investment decision and who received negative outcome feedback on this decision indicated a preference for retrospective information (i.e., information about the project's past), whereas participants in all other conditions predominantly chose a prospective piece of information (i.e., information about future prospects etc.). Conlon and Parks concluded that responsible decision makers selectively prefer information that bolsters their initial decision after negative feedback (which would be selective exposure to information). However, due to a confound in their experimental material (for more details, see our first experiment), we consider this conclusion premature.

In contradiction to the previous literature, we consider an information search bias in escalation of commitment to be rather unlikely. Research on self-serving biases has shown that people want to be or, at least, appear to be unbiased; they want to maintain

¹ To be precise, there is one other published study that attempted to show biased information search in escalating commitment, namely, the one by Beeler and Hunton (1997). However, in their study, prospectivity versus retrospectivity of information (for more details about this distinction in information search, see Experiment 1) was fully confounded with level of detail. Their prospective information was more global, giving only outlooks on the economic development of the whole economy and on the individual branches of industry. The retrospective information, in contrast, provided information on the level of the individual companies in which participants had invested money. Therefore, the results of Beeler and Hunton must be interpreted with caution and cannot contribute to clarifying the role of biased information search in escalation of commitment.

an “illusion of objectivity” (Pyszczynski & Greenberg, 1987). Particularly in a situation in which losses have occurred—as in an escalating commitment situation—and in which the initial decision appears at least questionable, information critically evaluating this choice should be seen as useful for future decisions and, hence, sought out. Festinger (1964) predicted that people will actively seek dissonant information if this information is useful for a possible revision of one’s decision. In line with this idea, Frey (1982) has shown that with increasing losses, people no longer exhibit selective exposure to information and might even prefer the dissonant information. Similarly, Fischer, Jonas, Frey, and Kasstenmüller (2008) have shown that no selective exposure occurs if the situation is framed in terms of losses. This leads to the following:

Hypothesis 1: In escalation of commitment situations, responsibility for the initial decision does not affect subsequent information search bias; specifically, individuals responsible for the initial unsuccessful investment decision are not more likely to search for information in favor of reinvestment than those not responsible for the initial investment decision.

Hypothesis 1 is a null hypothesis. In order to justify retaining the null hypothesis in case of a null finding, we test this hypothesis in a series of experiments designed to have high test power. These experiments also consider an alternative cognitive bias that may explain why responsibility for the initial decision leads to increased escalation of commitment.

Biased Information Evaluation in Escalating Commitment

With regard to information evaluation, several lines of research have shown that people judge information supporting their opinion to be more accurate, more important, and to have stronger implications than information conflicting with their opinion (e.g., K. Edwards & Smith, 1996; Koehler, 1993; Lord, Ross, & Lepper, 1979). Particularly relevant to our topic, information supporting the preferred alternative is evaluated more positively than information contradicting this alternative (e.g., Greitemeyer & Schulz-Hardt, 2003; Russo, Medvec, & Meloy, 1996), and this bias fosters the maintenance of suboptimal preferences (Greitemeyer & Schulz-Hardt, 2003; Russo, Carlson, & Meloy, 2006). Biased evaluation occurs because conflicting information immediately captures more attention than supporting information, and due to this increased attention, more weaknesses are detected in conflicting than in supporting information (K. Edwards & Smith, 1996).

Unlike biased information search, biased information evaluation has seldom been referred to in the context of escalating commitment. This is rather peculiar because decision makers responsible for initiating the chosen course of action should be particularly susceptible to such biased evaluation: Because they have made the initial choice, the chosen alternative is their preferred one (Schulz-Hardt, Thurow-Kröning, & Frey, 2009), so they should be expected to show a preference-consistent information evaluation bias, meaning that information in favor of the chosen alternative (and, thus, in favor of reinvesting) is evaluated more positively (e.g., as being more credible and more important) than information opposing it. Because nonresponsible participants do not systemat-

ically prefer the chosen alternative (Schulz-Hardt et al., 2009), no such bias should be expected among them.

But if, as we have argued in the case of information search, it is particularly important for decision makers to be, or appear to be, unbiased when they are facing losses, should this not also make such biased evaluation processes unlikely to occur? With regard to this, information search, on the one hand, and information evaluation, on the other, differ considerably: It is relatively easy to avoid selective exposure to information—one just has to make sure that information on both sides is chosen equally often or that even more information conflicting with the chosen alternative is sought out. In contrast to this, biased information evaluation is much more subtle and difficult to avoid. As K. Edwards and Smith (1996) have shown, the asymmetric attention allocation underlying this bias occurs instantaneously, and the distortion might be fully outside the person’s awareness (Russo, Meloy, & Wilks, 2000). Thus, even if decision makers responsible for initiating the chosen course of action are aware that the situation requires a careful and open-minded evaluation of the available information, it might be difficult for them to avoid an evaluation bias in favor of reinvestment, and this bias might heighten their reinvestment.

Although no studies have yet systematically investigated this idea, at least some hint at the existence of an information evaluation bias in escalating commitment: Bazerman et al. (1982) as well as Schoorman (1988) showed that participants who were responsible for selecting an applicant rated a poor performance by that person better than participants who were not responsible for hiring that applicant. However, the authors did not investigate behavioral consequences derived from the biased performance evaluation, so no conclusions concerning escalation of commitment can be drawn. Schulz-Hardt, Vogelgesang, Pfeiffer, Mojzisch, and Thurow-Kröning (2010) investigated entrapment, a phenomenon that is closely related to escalating commitment. In an entrapment situation, participants experience relatively small, but continuously cumulating losses, and the critical question is how long they persist with this course of action. In the Schulz-Hardt et al. study, participants received comments, presumably written by other participants, prior to the occurrence of the negative feedback. The authors showed that participants elaborated these comments in a biased manner: Whereas they generated supporting arguments about comments that were positive about their initial choice, negative comments about this choice were refuted; this differential thought pattern led to stronger entrapment. However, because the comments were given prior to the negative feedback, the study does not directly address the question how information is evaluated in an escalation situation; rather, it shows that a bias that occurs prior to an escalation situation can have an inoculating effect for the negative feedback. Another study by Bialogorsky, Boulding, and Staelin (2006) investigated biased evaluation after an escalation situation: They found that postdecisional evaluation of information is biased in decision makers persisting with a failing new product. In their study, participants in favor of a new product devalued new information indicating failure of the product after they had decided to continue their endeavors. However, due to the nature of their experimental design, it remains unclear whether these biases existed prior to the decision to persist or whether they resulted from this decision.

So, to sum up, theory on preference-consistent information evaluation gives us good reasons to believe that information eval-

uation might be biased in escalating commitment, and some escalation studies, although not directly testing this idea, contain findings that are in line with it. Hence, we derive:

Hypothesis 2: In escalation of commitment situations, responsibility for the initial decision positively affects subsequent information evaluation bias; specifically, individuals responsible for the initial unsuccessful investment decision are more likely to evaluate information in favor of reinvestment than those not responsible for the initial investment decision.

If information evaluation is indeed biased toward reinvestment in decision makers responsible for initiating a failing course of action, this bias can potentially aggravate the escalation of commitment. Under the assumption that decision makers take their evaluation of the additional information into account when making their reinvestment decision, a bias toward reinvestment should in fact lead to increased escalation. This leads to the following:

Hypothesis 3: The information evaluation bias partially mediates the effect of responsibility for the initial investment decision on escalating commitment.

It should be noted that we expect “only” partial mediation here because, as already shown by Schulz-Hardt et al. (2009), responsibility can also affect reinvestments directly (i.e., when no additional information is available) by means of individual preferences.

Overview of Experiments

In the following, we report on a series of four experiments aimed at testing our three hypotheses. All experiments were conducted at the University of Goettingen, Germany, and participants were either German or, in case they were from abroad, German speaking. Experiments 1 and 2 focus on testing Hypothesis 1, that is, they aim at showing that there is no biased information search among decision makers responsible for failure. Experiment 1 is a critical replication of the seminal Conlon and Parks’ (1987) study with increased sample size, whereas Experiment 2 was designed to provide an ecologically more valid and methodologically sounder test of Hypothesis 1 by improving on several aspects of the Conlon and Parks’ methodology. Experiments 3 and 4 test our Hypotheses 2 and 3; that is, they test whether information evaluation is biased in escalating commitment (Hypothesis 2) and whether this bias mediates escalating commitment (Hypothesis 3). In Experiment 3, we tested these hypotheses for additional information that is sought out by the participants themselves (thus also allowing Hypothesis 1 to be tested once again), whereas in Experiment 4, the experimenter provides the additional information. By experimentally manipulating the quality of information and, hence, directly addressing the assumed mediator of escalating commitment, Experiment 4 provides a particularly strong test of Hypothesis 3. Figure 1 gives an overview of the hypothesized relations between the core variables in our experiments: responsibility for the initial decision, information search bias, information evaluation bias, and the amount of reinvestment in the initially funded division.

Experiment 1

The purpose of Experiment 1 was to critically replicate the only original study that (supposedly) provided evidence for biased

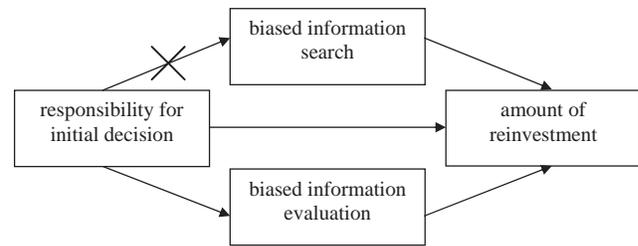


Figure 1. Overview of hypothesized relations between responsibility for the initial decision, information search bias, information evaluation bias, and reinvestment. The “x” indicates that the pathway between “responsibility for initial decision” and “biased information search” does not exist; hence, the connection between the two is crossed out.

information search in escalating commitment, namely, the study by Conlon and Parks (1987). Applying a version of Staw’s (1976) classic escalation paradigm, Conlon and Parks (1987) orthogonally manipulated whether or not participants were responsible for initiating a project (responsible vs. nonresponsible) and whether the project performed well or poorly (success feedback vs. failure feedback). Prior to making their reinvestment decision, participants could choose among five pieces of information, two of which were *prospective* (i.e., dealing with future aspects of the project), whereas the other three were *retrospective* (i.e., dealing with past aspects of the project). As we briefly mentioned above, only participants who were responsible for choosing a project that turned out to perform poorly preferred retrospective information, whereas participants in the three other conditions predominantly selected a prospective piece of information. Conlon and Parks interpreted this pattern as indicating a self-justification bias among participants in the former condition.

Whereas their finding and its interpretation have been widely accepted in the literature, we see at least two important methodological problems implying that this acceptance might be premature. First, the sample size in the Conlon and Parks’ (1987) study was rather small, with only 12 participants in each condition. This small sample size makes the study prone to random sample errors. The second—and more severe—weakness is that the material used by Conlon and Parks contains a possible confound: The piece of information most frequently chosen among participants responsible for failure was said to discuss “the results of the R&D projects over the last 5 years and provide[s] reasons for successes and failures” (p. 350). As an analysis of the reasons why the feedback has been negative so far may be crucial to decide whether it is worthwhile continuing the project, choosing this piece of information need not necessarily reflect self-justification and bolstering of the initial decision, but could rather be driven by a motivation to make a good reinvestment decision. Interestingly, this retrospective piece of information was most frequently chosen second by both nonresponsible participants and participants responsible for success, that is, even those participants who had no need to bolster an initial choice also considered this retrospective piece of information important.

In order to clarify the occurrence of selective exposure to information in escalating commitment, Experiment 1 was designed as a critical replication and extension of Conlon and Parks (1987). On the one hand, we replicated their experimental design, using

their original information pool. However, to avoid the possible confound described above, we also created a new information pool that was specifically designed to test for selective exposure to information. The requirements for this material were that all information had to be equal with regards to usefulness for the reinvestment decision while, at the same time, strongly differing with regards to whether it supports or contradicts the initial decision. We designed this pool by applying an operationalization of information search as is typically used in dissonance-theoretical selective exposure research (e.g., Frey, 1986): The participants are informed that additional expert evaluations of the decision case are available and that they can read at least some of them. As the basis for their information selection, summary statements are given that clearly indicate the expert's opinion (e.g., whether she supports or opposes the initial funding decision). Thereby, it can be tested whether the participants systematically prefer supporting to conflicting information.

Method

Participants and design. Two hundred seventy-six undergraduate and graduate students participated in the experiment. Seven persons had to be excluded, one due to missing data, three for correctly recognizing the study objectives, and another three for reallocating more money than was available according to the experimental instructions. Thus, 269 participants remained, of whom 186 were female (69%). Ages ranged between 18 and 45 years ($M = 22.58$, $SD = 3.43$).

The experiment is based on a 2 (responsibility: responsible vs. not responsible) \times 2 (feedback: success vs. failure) factorial between-subjects design. In order to fully replicate the original nested design used by Conlon and Parks (1987), two groups of responsible participants were added who were not given the opportunity to search for information. One of these groups received positive feedback after the first decision (success), whereas the second group received negative feedback (failure). Participants were randomly assigned to the six experimental conditions.

Hypothesis 1, predicting the absence of an information search bias in favor of reinvestment, is formally a null hypothesis, and, as a consequence, sufficient test power is required to justify retaining this hypothesis. From the data of Conlon and Parks (1987), an effect size of $w^2 = .25$ was derived for the information search bias of participants responsible for failure.² This qualifies as a large effect based on the classification of Cohen (1988). Given this effect size, and given a Type I error of .05, a sample size of 160 participants should be sufficient to achieve a test power of approximately 1. In other words, if the findings of Conlon and Parks are valid, a replication with at least 160 participants should reveal a bias toward retrospective information among participants responsible for failure, providing this bias really exists (the probability of not finding the specified effect given it exists in this experiment is $p < .00001$). Our sample meets this requirement, as it contained 176 participants in the four experimental conditions in which information search was investigated.

Materials and pretest. A German adaptation of the Adams and Smith case from the seminal Staw (1976) study was used, because Conlon and Parks (1987) also used this case. In this case, study participants are first provided with a short description of a fictional company consisting of two departments, a consumer and

an industrial products department. Participants further receive information about the two departments' respective products as well as their financial development during the past 10 years, which indicates steadily declining profits for both departments. In order to increase profitability, the company is faced with the initial decision of which of the two departments should receive considerable research and development (R&D) funding. Five years after the initial decision participants are provided with data on the financial performance of both departments and are, then, asked to allocate additional R&D funding to the initially chosen department.

With regard to information search, both the information pool from the Conlon and Parks' (1987) study as well as a new information pool that was specifically designed to test for biased information search were included. The new information pool, which is referred to here as the *selective exposure pool*, consisted of four pieces of information, two of which argued that the initial investment decision was the right choice at the time when the investment was made, whereas the other two held the view that the initial decision was mistaken given the facts that were available at that time. As the basis for their information selection, the participants received a brief summary statement for each piece of information, and from this summary statement it became clear whether the corresponding expert evaluation was in favor of or against the initial decision. An example of a summary statement in favor of the initial decision is: "At the time the decision was made, the future prospects of the consumer/industrial products division were very promising. Therefore, it was correct to invest the money in this division."

In order to test for the present assumptions that there is a confound in the original information pool that questions the internal validity of the original Conlon and Parks' (1987) study and that the new selective exposure pool is free of that confound while allowing information supporting and contradicting the initial choice to be clearly distinguished, a pretest was conducted. Sixty-two participants took part in this pretest. Half the participants rated each piece of information with regards to its suitability for self-justification while the other half rated their usefulness for making a good reinvestment decision (both ratings used 11-point Likert-scales ranging from 0 [*not at all useful*] to 10 [*very useful*]). The original information pool was analyzed first. Contrary to what Conlon and Parks suggested, it was found that participants rated the retrospective pieces of information as being less useful for self-justification compared with the prospective pieces of information ($M = 5.87$, $SD = 1.50$ vs. $M = 7.27$, $SD = 0.29$), $t(30) = -3.56$, $p = .001$, $d = 1.30$. Furthermore, an analysis of variance (ANOVA) with the five pieces of information as within-subjects factor showed significant differences between the five pieces of information in the original information pool concerning suitability

² We calculated this effect size on the basis of the assumption of an equal distribution of prospective versus retrospective information in all four information search conditions of Conlon and Parks' (1987) experiment. One could argue that the more realistic null hypothesis should be that participants responsible for failure should exhibit the same information search pattern as other participants, namely, a ratio of prospective to retrospective information of 3:1. However, because this assumption leads to an ever larger effect size estimate of $w^2 = .32$, we chose the more conservative null hypothesis of equal distribution.

for making a good reinvestment decision, $F(4, 120) = 10.33, p < .001, \eta_p^2 = .26$. Within-subject contrasts revealed that only the retrospective R&D report mentioned above was perceived to be significantly more suitable for making an optimal decision compared with the mean of the remaining pieces of information ($M = 7.87, SD = 1.48$ vs. $M = 6.17, SD = 1.22$), $t(30) = 7.11, p < .001, d = 2.60$. This confirms the present claim that the material applied in the only original study on biased information search in escalating commitment confounded prospectivity versus retrospectivity with usefulness for making good reinvestment decisions.

The new selective exposure pool was analyzed next. Positive evaluations of the initial decision were perceived to be much better suited for self-justification than the negative evaluations ($M = 6.94, SD = 2.92$ vs. $M = 2.97, SD = 2.58$), $t(30) = 4.63, p < .001, d = 1.69$. At the same time, all pieces of information were perceived to be equally well suited for making a good reinvestment decision, $F(3, 87) = .52, p = .67, \eta_p^2 = .02$. In summary, this indicates that the selective exposure pool provides the means for an unambiguous test of selective exposure to information in an escalation situation.

Procedure. The procedure followed Conlon and Parks (1987). Half the participants in the information search conditions were responsible for the initial R&D funding and, accordingly, decided themselves which of the two divisions should receive the funding. Additionally, these participants had to give some reasons for their decision. The other half of participants were not responsible and were told that the company's former R&D financial executive had selected either the consumer or the industrial products division for the financial injection and that they would now take on this role with responsibility for future investment decisions. Next, participants were asked to state to what degree they felt responsible for the future development of the initially supported division (manipulation check) using an 11-point Likert-scale ranging from 0 (*not at all*) to 10 (*very much*).

Subsequently, feedback was provided in the form of balance sheets for the 5-year period following the initial investment deci-

sion, displaying either a rather stable positive economic development of the chosen division (success) or increased losses (failure). All data presented were identical to those used by Conlon and Parks (1987). Afterward, participants were told that the managerial board had made another €8 million available for R&D projects, which they should distribute between both divisions as they saw fit. Participants in the information search conditions were asked to consult further information before making this decision. Two different pools of information were available: the original pool, as used by Conlon and Parks, and the new selective exposure pool. Participants were asked to select one piece of information from each pool. Having chosen the information, participants were told that due to financial and time constraints, they should proceed directly to the final decision without reading the information they had requested (which, again, was similar to Conlon and Parks). In the no-search conditions, no such instruction was given, and no information was provided. The dependent variable regarding escalating commitment was the amount of reinvestment allocated to the initially chosen division. Afterwards, participants were asked to briefly give reasons for their decision. Then the experiment was finished. Participants were thanked for their participation, debriefed, given €5 (about \$7 U.S.), and dismissed.

Results and Discussion

Manipulation check. Prior to the main analyses, we checked whether the responsibility manipulation had worked as intended. Participants who made the initial decision reported feeling more responsible ($M = 8.20$) than those who did not ($M = 7.52$), $t(274) = 3.46, p < .001, d = 0.42$.

Information selection. First, we examined information selection from the original pool. The distribution of information selection is shown in Table 1. To examine the effects of responsibility, feedback, and their interaction on information selection, we used binary logistic regression with information selection as a binary-coded dependent variable (prospective vs. retrospective).

Table 1
Reinvestment and Information Selection by Experimental Condition in Experiment 1

Condition	Search				No search	
	Responsibility		No responsibility		Responsibility	
	Success	Failure	Success	Failure	Success	Failure
Information selection from original pool						
Prospective	11 (24%)	14 (30%)	18 (41%)	17 (40%)	—	—
Retrospective	34 (76%)	32 (70%)	26 (59%)	26 (60%)	—	—
Information selection from selective exposure pool						
Positive	24 (53%)	18 (39%)	21 (48%)	13 (30%)	—	—
Negative	21 (47%)	28 (61%)	23 (52%)	30 (70%)	—	—
Amount of reinvestment (in million Euro)						
<i>M</i>	3.11	3.74	4.08	3.60	3.68	4.72
<i>SD</i>	1.81	1.71	1.85	1.63	2.10	1.81

Note. Participants had to select one piece of information from the Conlon and Parks' (1987) information pool, which contained two prospective and three retrospective items as well as one piece of information from the selective exposure pool that encompassed two positive (supporting the initial investment) and two negative pieces of information (criticizing the initial investment). Values give the absolute and (in parentheses) relative frequencies of participants choosing a piece of information from the given category for each experimental condition. Values sum up to 100% for each information pool and experimental condition. Participants could reinvest up to €8 million in the initially supported division. Dashes indicate that measures of information search were not available in those conditions because participants did not receive information in the first place.

We did not find significant effects of feedback or the interaction of feedback and responsibility on information selection, both Wald $\chi^2(1, N = 176) < 0.31$, both $ps > .58$. The main effect of responsibility was marginal, Wald $\chi^2(1, N = 176) = 3.26, p = .07$, but, contrary to the assumptions of Conlon and Parks (1987), the pattern indicated that participants who were responsible for the initial decision selected prospective information slightly more often than nonresponsible participants (40% vs. 28%, collapsed over the respective success and failure feedback conditions).

The more critical test of biased information search was information selection from our new information pool. The interaction of responsibility and feedback did not approach significance, Wald $\chi^2(1, N = 176) = 0.08, p = .78$. Participants responsible for failure did not select supporting information more often than participants in the other three experimental conditions (39% vs. 46%). This means that even when using an information pool that provides participants with the means to clearly identify those pieces of information in favor of their initial decision, no indications of a biased information search pattern were found.

Furthermore, whereas responsibility did not have a significant main effect on the choice of positive versus negative information, Wald $\chi^2(1, N = 176) = 1.00, p = .32$, a significant main effect of feedback was found, Wald $\chi^2(1, N = 176) = 4.57, p = .03$. Participants with success feedback selected information supporting the initial decision more often than participants with failure feedback (50% vs. 35%, collapsed over the respective responsibility conditions). This makes sense if we assume that participants take the expected plausibility of the information into account when making their information selection (see also Fischer, Schulz-Hardt, & Frey, 2008): Given negative feedback, an expert statement claiming the initial decision to be correct should be perceived as less plausible and trustworthy and, hence, be chosen less often than an expert statement judging the initial decision to be a mistake.

Amount of reinvestment. A 2×2 ANOVA among the information search conditions revealed no significant main effects of responsibility or feedback on amount of reinvestment (both $F_s < 2.51$, both $ps > .11$, both $\eta_p^2 < .02$) (means and standard deviations for all conditions are shown in Table 1). We did, however, find a significant interaction, $F(1, 174) = 4.39, p = .04, \eta_p^2 = .03$, indicating that participants responsible for success reinvested slightly more than other participants. We analyzed reinvestment in the no-search conditions separately and found that participants reinvested more money when they received negative outcome feedback ($M = 4.72, SD = 1.81$) compared with success feedback ($M = 3.68, SD = 2.10$), $t(89) = -2.53, p = .01, d = 0.54$. Thus, similar to Conlon and Parks (1987), we found that responsible participants showed escalating commitment when they received negative outcome feedback, but only when they did not have the opportunity to search for information prior to the second investment decision. Overall, our reinvestment results are in line with the findings of Conlon and Parks (1987).

In summary, our findings challenge those reported by Conlon and Parks (1987), because we did not find evidence for selective exposure to (supporting) information. Participants responsible for failure differed from the other participants in their preference for information neither when choosing from the original information pool nor when choosing from our new information pool, and in none of these conditions was a preference for supporting information observed. This implies that the findings of Conlon and Parks

should not be taken as evidence for selective exposure to information in escalating commitment; instead, they might be due to the confound that we described in the introduction of this experiment, perhaps combined with a Type I error due to low sample size. However, before one can accept the more general claim that information search in escalating commitment will not suffer from selective exposure to information, an even stronger test is necessary, and this test is provided in Experiment 2.

Experiment 2

For the purpose of critically replicating the most cited study on information search in escalation situations, Experiment 1 followed the design and the operationalizations of Conlon and Parks (1987). However, for (at least) five reasons, this design and these operationalizations might be suboptimal when it comes to detecting selective exposure in escalating commitment situations. First, it is possible that the classic manipulation of responsibility (Staw, 1976), which was used by Conlon and Parks (1987), as well as most other escalation studies manipulating responsibility, might be too weak to elicit the necessary involvement leading to biased information search. Therefore, in Experiment 2, we used a stronger manipulation that should increase the feelings of dissonance stemming from being responsible for negative feedback (see the Method section). Second, in Experiment 1 only one piece of information could be selected. If information search is predominantly driven by rational motives such as acquiring the most valid information, more subtle selective exposure effects that might have influenced the choice of the second, third, or maybe fourth piece of information will have gone unnoticed. Therefore, participants in Experiment 2 had the opportunity to choose up to six out of 12 pieces of information before making the second investment decision. Third, the fact that the summary statements in Experiment 1 contained not only the position of the expert (pro vs. against the initial decision) but also a core argument for this position may have triggered more rational motives instead of an attempt to bolster the initial decision. In the selective exposure literature, sometimes the summary statements for the information are operationalized in this way, but sometimes they only contain the position of the speaker. Hence, in Experiment 2 we included both versions of the information search as an experimental factor in order to make sure that the absence of selective exposure could not be attributed to the particular operationalization used.

Fourth, all expert evaluations in the selective exposure pool of Experiment 1 dealt with the correctness of the initial investment decision *at the time the decision was made*. Whereas this was necessary to replicate the original study by Conlon and Parks (1987), from a practical point of view, a bias in information search would be even more relevant if it occurred with regard to information dealing with whether or not a reinvestment should be made *now*. This type of information is addressed in Experiment 2. Finally, the participants did not receive the requested information in Experiment 1, making it impossible to test for any consequences of biased information search for escalating commitment, assuming that such a bias exists. Hence, participants in Experiment 2 were allowed to read the information they chose before making the reinvestment decision.

Method

Participants and design. Two hundred eleven undergraduate and graduate students participated in the experiment. Seven persons

had to be excluded, two because they reported having already participated in a similar study before and the other five for missing data. Thus, 204 participants remained, of whom 118 were female (58%). Ages ranged between 18 and 32 years ($M = 22.00$, $SD = 2.36$). At a Type I error level of .05, this sample size should result in a test power of .94 for medium-sized effects ($f = .25$) in a two-way ANOVA. The experiment is based on a 2 (responsibility: responsible vs. not responsible) \times 2 (selection basis: position only vs. position plus argument) factorial between-subjects design. Only negative feedback conditions were run in Experiment 2, because these are the critical conditions for escalating commitment (inclusion of the success conditions in Experiment 1 was only to allow full comparability with the Conlon and Parks', 1987, study).

Procedure. The procedure paralleled that of Experiment 1 with the following exceptions. Experiment 2 was computer based. In order to create an increased sense of personal involvement with the initial decision, responsible participants not only made the initial decision themselves, they were also led to believe that a photo of them would be taken after the experiment and that this photo, along with a description of their decisions in the case study, would be used for a presentation at a scientific conference, thereby creating a heightened sense of publicity. Research on cognitive dissonance has shown that dissonance is greater for publicly made decisions (see Frey, 1986), and this should intensify the need for self-justification as well as potential biases in information search. Also, multiple participants were tested simultaneously in a large room. Although participants worked on the case individually and were not allowed to cooperate or exchange information, the presence of others working on the same task usually induces social competition (Weber & Hertel, 2007), thereby increasing the involvement with the decision case. After the initial investment decision and prior to the failure feedback, the computer displayed a status bar that led participants to believe that the program was calculating the results of the initial decision. The feedback itself was identical to the failure feedback in Experiment 1.

Next, participants were told that investment decisions are rarely made without consulting additional information and that such information would now be available. They were informed that a total of 12 expert reports on the question of whether or not to reinvest in the (so far) failing division were available. Six of these reports framed the negative performance as temporary and were in favor of reinvesting money in the failing division (positive reports), whereas the remaining six described the negative performance as an indicator of permanent failure and advised not reinvesting any money (negative reports). Each report was about 200 words in length, and for each report there was a summary statement. Depending on the experimental condition, these summary statements consisted either solely of the respective report's position on reinvestment, or they additionally provided the core argument of the respective expert's position. Examples for these summary statements are "Further funding of the consumer/industrial division is recommended" (positive report, position only) or "The consumer/industrial division is not optimally adjusted to the market which caused the recent losses. An improvement in this situation is not to be expected in the near future. Hence, it is advised not to reinvest in the consumer/industrial division" (negative report, position plus argument). All 12 reports as well as the respective core arguments were pretested (samples consisted of undergraduate and graduate students, and sample sizes were $N = 20$ and

$N = 30$, respectively) regarding perceived quality using 11-point Likert scales ranging from 0 (*not at all*) to 10 (*very much*). An example of an item for our measurement of report quality is "How credible do you consider the report/core argument to be?" Positive and negative reports were, on average, rated equally with regards to perceived quality, which was also the case for the respective summary statements, $t(19) = 0.17$, $p = .87$; and, $t(31) = -0.84$, $p = .40$, respectively.

In order to represent real-life limitations such as time pressure and costs for external advice, participants in Experiment 2 were restricted to choosing a maximum of six reports to read. The 12 summary statements were presented sequentially, and based on each statement, participants were to decide whether they wanted to read the whole report or not. If they chose to do so, the report was immediately displayed on the screen. As soon as participants had finished reading, the computer program displayed the next summary statement. The information search ended when participants had read either their sixth piece of information or, in the case that fewer than six pieces were chosen, after reading or rejecting the 12th piece of information.

Next, participants were informed that another €20 million had been made available for investment in research and development and that they were the responsible manager in charge of allocating the money. The amount of money available was increased from 8 million (Experiment 1) to 20 million in order to allow "true" escalating commitment (i.e., an increase in the funding of the initially chosen alternative)—in fact, most escalation studies using the Staw (1976) paradigm use the latter sum, and the only reason for restricting the sum to 8 million in Experiment 1 was to ensure full comparability with Conlon and Parks (1987). Participants were told that they could decide which share of the €20 million should be invested in the initially supported division and that remaining funds would be used to finance other projects in the company. As in Experiment 1, participants were also asked to provide reasons for their decision. When the experiment was finished, participants were thanked for their participation, thoroughly debriefed, given €5 (about \$7 U.S.), and dismissed.

Results and Discussion

Manipulation check. As in Experiment 1, we first checked whether the responsibility manipulation had worked as intended. The measure for responsibility was identical to Experiment 1. Participants who made the initial decision reported feeling more responsible ($M = 8.34$) than those who did not make the initial decision ($M = 6.51$), $t(202) = 6.76$, $p < .001$, $d = 0.93$. Whereas descriptively the effect size for the manipulation check in Experiment 2 ($d = 0.93$) is indeed more than twice as large as in Experiment 1 ($d = 0.42$), this difference is not statistically significant as indicated by a slight overlap in the 95% confidence intervals for the two effect size measures (the confidence intervals range from 0.18 to 0.66 for the effect size obtained in Experiment 1 and from 0.66 to 1.24 for the effect size obtained in Experiment 2)³.

Information selection. On average, participants chose 5.8 of the maximally allowed six (out of 12) pieces of information, and the amount of information chosen did not differ between experimental conditions (all F s < 1 , all p s $> .85$). We operationalized information search bias as the difference between the number of

³ Confidence intervals for the effect size measures were calculated using the approach described by Kelley (2007).

positive reports chosen and the number of negative reports chosen. This means that positive values indicate a preference for information in favor of continuing the project. A 2 (responsibility: responsible vs. not responsible) \times 2 (selection criterion: position only vs. position plus argument) ANOVA with information search bias as the dependent variable revealed no significant effects (all F s $<$ 1). Furthermore, separate one-sample t tests against a value of 0 indicated that participants in all four experimental conditions searched for information rather unbiasedly (all $|t$'s $<$ 1, all p s $>$.54) (all means and standard deviations are displayed in Table 2). Because Experiment 2 provided a test power of .94 for medium effects given a Type I error level of .05, these results suggest that noteworthy selective exposure to information among responsible (or nonresponsible) participants does not occur in a typical escalation situation. This interpretation is strengthened by the fact that we had implemented information search conditions that have been shown to facilitate selective exposure to information, namely, sequential presentation and selection of information (Jonas, Schulz-Hardt, Frey, & Thelen, 2001) as well as a restriction on how much information can be chosen (Fischer, Jonas, Frey, & Schulz-Hardt, 2005). Hence, when also taking the results of Experiment 1 into account, we consider the absence of an information search bias to be diagnostic of the fact that information search is rather unbiased in escalation of commitment.

Amount of reinvestment. A 2×2 ANOVA revealed a significant main effect of responsibility, $F(1, 200) = 5.22, p = .02, \eta_p^2 = .03$, replicating the classic finding that responsible participants reinvest higher amounts of money after receiving negative feedback ($M = 10.00$) than participants not responsible for the initial decision ($M = 8.56$). Neither the main effect for selection criterion nor its interaction with responsibility had an effect on the amount of reinvestment (both F s $<$ 1.89, both p s $>$.17). In contrast to Experiment 1 and the Conlon and Parks' (1987) study, the responsibility effect on reinvestment did not vanish after information search, lending some credibility to the assumption that the disappearance of this effect in the Conlon and Parks' study and in our first experiment has to do with the somewhat artificial procedure of letting the participants request information and then not giving them this information.

Table 2
Reinvestment and Information Search Bias by Condition in Experiment 2

Condition	Responsibility		No responsibility	
	Title only	Summary	Title only	Summary
Information selection bias				
<i>M</i>	-0.13	-0.06	0.12	-0.06
<i>SD</i>	1.58	1.53	1.66	1.49
Amount of reinvestment (in million Euro)				
<i>M</i>	9.51	10.50	8.18	8.93
<i>SD</i>	4.73	4.60	4.07	4.69

Note. Participants could reinvest up to €20 million in the initially supported division. Information selection bias is calculated as the difference between the number of pieces of information in favor of reinvestment chosen and the number of pieces of information in favor of withdrawal chosen.

In summary, Experiment 2 critically tested our assumption that selective exposure is absent in escalating commitment. To this end, several methodological improvements over Experiment 1 and the Conlon and Parks' (1987) study were implemented. As a result, Experiment 2 was designed in a way that specifically favored the occurrence of selective exposure, should it exist in escalation situations, and the sample size was sufficient to provide a high test power. Despite these improvements, no biases whatsoever occurred; that is, neither did participants, on average, exhibit biased information search nor did those participants responsible for failure search for information differently than nonresponsible participants. In conjunction with the null results of Experiment 1, we consider it justified to state that information search in escalation situations is not subject to selective exposure.

However, as we have outlined in the introduction, a balanced information search does not automatically mean that information processing as a whole is balanced. In contrast, a bias in favor of reinvestment might also occur at the level of information evaluation. We addressed this question in Experiments 3 and 4.

Experiment 3

As we have argued in the introduction, there is reason to believe that the evaluation of information may be biased in escalating commitment situations, particularly because decision makers responsible for failure perceive information as being more in favor of reinvestment than decision makers who did not initiate the particular course of action. In order to test this assumption, we replicated the design of Experiment 2 (thus, also allowing for an additional test of Hypothesis 1) and added an information evaluation phase prior to the reinvestment decision.

Method

Participants and design. One hundred seventy-six undergraduate and graduate students participated in the experiment. Of these, 12 had to be excluded because they correctly recognized the study objectives. Thus, 164 participants remained, 74 of whom were female (45%). Ages ranged between 18 and 34 years ($M = 22.23, SD = 2.70$). At an alpha error level of .05, this sample size should result in a test power of .89 for medium-sized effects ($f = .25$) for a two-way ANOVA. The experiment is based on a 2 (responsibility: responsible vs. not responsible) \times 2 (selection basis: position only vs. position plus argument) factorial between-subjects design.

Procedure. The procedure in Experiment 3 was largely identical to Experiment 2 with the following important exception: After the participants had received and read the requested pieces of information, and before the reinvestment decision was made, their evaluation of the selected pieces of information was measured. To this end, participants in Experiment 3 were asked to rate the quality of the respective pieces of information with regards to perceived credibility ("How credible do you consider the report to be?"), relevance concerning the decision case ("How relevant do you consider the report to be for your investment case?"), and expertise of the author ("How professionally competent do you consider the author of the report to be?") on 11-point Likert scales ranging from 0 (*not at all*) to 10 (*very much*). Furthermore, participants were asked to assess the strength with which the expert argued against

or in favor of further investments on another 11-point Likert scale ranging from -5 (*strongly opposed*) to $+5$ (*strongly in favor*).

Experiment 3 further introduced three minor changes compared with Experiment 2. Because the enhanced responsibility manipulation in Experiment 2 did not lead to a significantly stronger manipulation of responsibility and was, hence, not more effective than the standard manipulation in bringing about biased information search, the standard manipulation of responsibility (similar to Experiment 1; see also Conlon & Parks, 1987; Staw, 1976) was used in Experiment 3 in order to allow for better comparisons of the results with the previous literature. Also, the set of available pieces of information in Experiment 3 was reduced to a total of eight in order to compensate for increased duration of the experiment caused by information evaluation. Four pieces of information were in favor of reinvestment, whereas the remaining four suggested terminating the project. Finally, the information selection phase was not sequential; that is, participants were presented titles (or titles plus summary statements) of all eight expert statements simultaneously and were then asked to choose four of them for further reading. This ensured that information selection was finished before the first piece of information was read and evaluated, thereby preventing information search and information evaluation from directly affecting each other.

As soon as all four expert statements had been read and rated, participants proceeded with the reinvestment decision and could allocate up to €20 million to the initially supported division. Afterward, participants were thanked for their participation, thoroughly debriefed, given €5 (about \$7 U.S.), and dismissed.

Results and Discussion

Manipulation check. As in Experiments 1 and 2, we first checked whether the responsibility manipulation had worked as intended (the exact wording of the manipulation check was identical to the one used in Experiments 1 and 2). This was confirmed: Participants who made the initial decision reported feeling more responsible ($M = 8.46$) than those who did not ($M = 7.00$), $t(162) = 4.39$, $p < .001$, $d = 0.69$.

Information search. The measure of a potential information search bias was calculated similarly to Experiment 2. In line with the results of Experiment 2, a 2 (responsibility: responsible vs. not responsible) $\times 2$ (selection criterion: position only vs. position plus argument) ANOVA with information search bias as the dependent variable revealed neither a significant effect for responsibility nor its interaction with selection criterion, $F(1, 160) = 0.28$, $p = .60$; and, $F(1, 160) = 1.84$, $p = .18$, respectively. The main effect for selection criterion was also not significant, $F(1, 160) = 3.23$, $p = .07$. Also, separate one-sample t tests against a value of 0 indicated that participants in all experimental conditions searched for information rather unbiasedly (all $|t|$ s < 1.64 , all p s $> .10$); that is, they chose, on average, an almost equal amount of positive and negative reports (all means and standard deviations are displayed in Table 3). This supports our conclusion that selective exposure is rather unlikely in escalation situations. However, the focus of this experiment was on the evaluation of the selected information, which is reported below.

Information evaluation. The most direct method to calculate an evaluation bias for our material would be to average the quality assessments for the expert reports in favor of reinvestments and subtract from this the average of the quality assessments for the

Table 3
Reinvestment, Information Search Bias, and Information Evaluation Bias by Condition in Experiment 3

Condition	Responsibility		No responsibility	
	Title only	Summary	Title only	Summary
Information selection bias				
<i>M</i>	0.10	0.20	-0.34	0.39
<i>SD</i>	1.39	1.62	1.33	1.56
Information evaluation bias				
<i>M</i>	0.32	0.48	-0.12	0.10
<i>SD</i>	1.02	1.04	1.16	1.09
Amount of reinvestment (in million Euro)				
<i>M</i>	11.00	11.99	8.49	8.84
<i>SD</i>	4.62	3.66	4.77	4.58

Note. Participants could reinvest up to €20 million in the initially supported division. Information selection bias is calculated as the difference between the number of pieces of information in favor of reinvestment chosen and the number of pieces of information in favor of withdrawal chosen. Information evaluation bias is calculated as the difference between participants' evaluation of the information and the average evaluation of the same pieces of information by a neutral reference sample.

expert reports against reinvestment (for each participant). However, this would cause several problems, the most severe of which being that this calculation is simply not possible for participants who request only positive or only negative reports. Therefore, we used a different method: We first constructed a scale averaging the perceived credibility, relevance, and expertise for each of the four reports selected (all α s $> .87$). We then computed the difference between the scale values obtained in Experiment 3 and independent reference values obtained in a pretest ($N = 20$) that asked participants to rate the quality of the eight available expert statements but did not entail any initial or any reinvestment decision. Thus, these pretest evaluations should provide a baseline of how the reports are evaluated if no decision-related biases occur. We multiplied the difference scores of the negative reports by -1 and then averaged the differences of the four chosen reports, leading to an overall report evaluation bias.⁴ Positive values of this bias indicate that the evaluation of the reports was biased in favor of further investments (because positive reports are evaluated better than in the pretest and/or negative reports are evaluated more negatively than in the pretest), whereas a negative average indicates a biased evaluation in favor of withdrawal.

A 2 (responsibility: responsible vs. not responsible) $\times 2$ (selection criterion: position only vs. position plus argument) ANOVA

⁴ It has been noted that difference scores suffer from certain disadvantages and should be avoided and, if possible, the individual components should be treated as separate variables (J. R. Edwards, 1995, 2002). However, in our case, this is not possible for two reasons. First, an isolated analysis of either a bias in the evaluation of negative reports or that of positive reports does not indicate whether a person's information evaluation is biased in favor of either type of information (opposed to a, generally, liberal or conservative evaluation of information). Second, a separate analysis would require the exclusion of all participants who chose either only positive or only negative reports, thereby leading to dropouts that might even be systematically related to the independent variable.

with information evaluation bias as the dependent variable revealed a significant main effect of responsibility, $F(1, 160) = 5.83$, $p = .02$, $\eta_p^2 = .04$, indicating that responsible participants evaluated information as being more in favor of reinvestment than nonresponsible participants ($M = 0.40$, $SD = 1.03$ vs. $M = -0.01$, $SD = 1.12$). Neither the main effect of selection criterion nor the interaction effect were significant (both $F_s < 1.32$, both $p_s > .25$) (means and standard deviations for all conditions can be derived from Table 3). Separate t tests against zero revealed that responsible participants' information evaluation was biased in favor of continuing the project ($M = 0.40$), $t(81) = 3.49$, $p < .001$, whereas nonresponsible participants rated information quality rather unbiasedly ($M = -0.01$), $t(81) = -0.06$, $p = .95$. In other words, whereas nonresponsible participants' ratings of the quality of the expert statements were largely similar to those of an independent pretest sample that was not involved in any investment decision, responsible participants rated the same information as being more in favor of continuing the project.

Amount of reinvestment. A 2 (responsibility: responsible vs. not responsible) \times 2 (selection criterion: position only vs. position plus argument) ANOVA with amount of reinvestment as the dependent variable revealed a significant main effect of responsibility, $F(1, 160) = 16.72$, $p < .001$, $\eta_p^2 = 0.10$; that is, responsible participants reinvested more money after receiving negative feedback ($M = 11.48$) than nonresponsible participants ($M = 8.66$), thus replicating the classic escalation effect. Neither the main effect for selection criterion nor the interaction effect were significant (both $F_s < 1$) (means and standard deviations for all conditions can be derived from Table 3).

Mediation analysis. We predicted that the biased evaluation of the chosen expert reports does, at least, partially explain why responsible participants reinvest more money than the nonresponsible participants. In order to test this assumption, we conducted a mediation analysis. Responsibility was dummy coded with 1 representing responsible participants and 0 representing nonresponsible participants. Responsibility significantly predicted the evaluation bias ($\beta = .18$), $t(162) = 2.41$, $p = .02$, analogous to the results of the ANOVA reported above. We next conducted a hierarchical regression analysis with amount of reinvestment as the dependent variable. In Step 1, we entered responsibility as a predictor, finding that it significantly predicted the amount of reinvestment ($\beta = .31$), $t(162) = 4.08$, $p < .001$. In Step 2, the report evaluation bias was included, receiving a significant regression weight of $\beta = .49$, $t(161) = 7.49$, $p < .001$. The weight of responsibility was now reduced to $\beta = .21$, $t(161) = 3.25$, $p = .001$, which is a significant reduction ($z = 2.29$, $p = .02$) (Sobel test; Sobel, 1982). As hypothesized, partial mediation has been successfully shown; that is, escalating commitment of responsible participants in Experiment 3 was partially due to a tendency of these participants to evaluate information as being more in favor of reinvestment.

In summary, Experiment 3 provides first-time evidence of biased information evaluation in an escalating commitment situation, that is, after negative feedback has occurred and the initial decision has to be reevaluated. Responsible participants evaluated the selected reports as being more in favor of further investments than nonresponsible participants did, and this difference in information evaluation partially mediated the higher reinvestment of responsible as compared with nonresponsible participants. It is not surpris-

ing that this mediation is "only" partial: Effects of responsibility on escalation have been shown in a wide range of previous studies (e.g., Bazerman, Giuliano, & Appleman, 1984; Schaubroeck & Davis, 1994; Schaubroeck & Williams, 1993; Staw, 1976; Wong & Kwong, 2007), and in these studies the reinvestment decision has typically been made without any additional information being provided, thus ruling out biased evaluation—therefore, the effect necessarily occurs even in the absence of biased evaluation. Nevertheless, biased evaluation of information is a mechanism that might substantially contribute to escalation among responsible decision makers in real-world decision making because, as we have outlined in the introduction, in most contexts important reinvestment decisions are not made solely on the basis of outcome feedback.

However, before we accept biased information evaluation as a mechanism contributing to escalating commitment, more robust evidence of this phenomenon and its relation to reinvestment would be desirable. Therefore, in Experiment 4 we provide another test of this. Furthermore, on the basis of Experiment 3, we cannot rule out the possibility that responsible participants already intended to reinvest a larger amount of money (compared with nonresponsible participants) when they read the expert reports, and, in order to justify their intended reinvestment decision, they biased their evaluation of information. In this case, the reports and their evaluation would not play any role for the reinvestment decision, and the bias would only constitute a by-product or even a consequence (rather than a cause) of the intended reinvestment. This issue is addressed in Experiment 4.

Experiment 4

In Experiment 4, we wanted to replicate the main findings of Experiment 3, namely that responsible participants evaluate the expert reports as being more in favor of reinvestment than do nonresponsible participants and that these differences in information evaluation partially mediate the higher reinvestments among responsible participants. Therefore, responsibility was manipulated once again, and we measured both information evaluation as well as reinvestment decisions in these two experimental conditions. In order to make sure that the subjective quality of the evaluated pieces of information does indeed play a causal role for subsequent escalation (instead of being its by-product or consequence), we experimentally manipulated the quality of the reports. Therefore, we constructed two versions for both the expert reports in favor of reinvestment and the expert reports against reinvestments. In the high-quality version (which was roughly similar to the previous two experiments), the reports were based on reasonable economic assumptions and contained solid, convincing arguments. In the low-quality version, they contained unrealistic assumptions and weak arguments. Although this is a manipulation of objective information quality, it should directly affect subjective perceived information quality (which we measured). If information evaluation was a post hoc rationalization of a firm intention to make a particular reinvestment decision, then this information quality manipulation should hardly affect the subsequent reinvestment decision. If it does, then this indicates that the additional information and the evaluation of its quality are taken into account when making the final reinvestment decision.

Method

Participants and design. Two hundred eight undergraduate and graduate students participated in the experiment. Of these, four were excluded from the data analyses because they recognized the study objectives. Thus, 204 participants remained, of whom 114 (56%) were female. Ages ranged between 19 and 38 years ($M = 22.64$, $SD = 3.00$). At an alpha error level of .05, this sample size provides a test power of about .95 for medium-sized effects ($f = .25$) for a three-way ANOVA. The experiment is based on a 2 (responsibility: responsible vs. not responsible) \times 2 (quality of the positive reports: high vs. low) \times 2 (quality of the negative reports: high vs. low) factorial between-subjects design.

Procedure. The procedure was identical to Experiment 3, with the following exceptions: To allow an appropriate test of our information quality manipulations on information evaluation, this time the participants could not select the additional information themselves—because in this case, in the conditions with mixed information quality (i.e., high-quality positive reports and low-quality negative reports, and vice versa), the participants might otherwise only select high-quality reports. Instead, it was stated that the managerial board had consulted four different experts with regard to the situation in the division that had received the initial funding and that the participants would now receive the short reports written by these experts.

Two experts favored further investments (positive reports); that is, the experts explained why the setback was only temporary and why further investments should prove successful. The other two experts argued against such investments (negative reports); that is, the experts considered the poor performance to indicate future failure. All participants read four reports (two positive and two negative). Positive and negative reports were presented in turns, and their order was varied.

The quality of the positive as well as the negative reports was manipulated independently of each other. The quality was either high, that is, the arguments in the report were cogent and logically straightforward, or the quality was low, that is, arguments were weak and contradictory. An example of an excerpt from a high-quality (negative) report reads as follows:

The German and European economy is experiencing a long-lasting weak phase. Reforms which have been announced won't reverse this trend. Unemployment could reach a record high in the coming months. . . . Therefore, one has to advise against further investments in the consumer/industrial product division.

In contrast, an example taken from a (positive) low-quality report reads as follows:

The weak Dollar which is largely bound to the Argentine Peso has precipitated a crisis of the European export industry. Thus, marketplaces outside Europe, for example the Mongolian or the Tibetan marketplace, could not provide any impulses. . . . However, statements by entrepreneurs from the small business sector mention that a recovery of the South American markets will have positive effects on the sales and earnings of the consumer/industrial product division. . . . Therefore, further investments in the consumer/industrial product division right now are strongly recommended.

Upon reading each report, participants were asked to rate the report quality. The questions and scales for report evaluation were similar to Experiment 3.

All reports had been pretested (student sample, $N = 50$) with regards to perceived quality. High-quality positive reports were rated better than poor quality positive reports ($M = 5.97$, $SD = 1.33$ vs. $M = 4.26$, $SD = 1.60$), $t(48) = 4.11$, $p < .001$ (the information quality scale was identical to Experiment 3). The same was true for the negative reports ($M = 6.50$, $SD = 1.04$ vs. $M = 4.15$, $SD = 2.19$), $t(48) = 4.92$, $p < .001$. Although positive reports were rated somewhat lower with regards to perceived quality than negative reports ($M = 5.15$, $SD = 1.69$ vs. $M = 5.37$, $SD = 2.05$), this difference was not significant, $t(49) = -0.61$, $p = .54$.

Results

Manipulation checks. We first checked whether the responsibility manipulation had worked as intended. Participants who made the initial decision themselves reported feeling more responsible ($M = 8.17$) than those who did not ($M = 6.01$), $t(202) = 7.13$, $p < .001$, $d = 1.00$.

In order to control for the successful manipulation of report quality, we tested whether high-quality reports were evaluated as being qualitatively superior compared with low-quality reports. Ratings on the three attributes “report’s credibility,” “report’s relevance,” and “expert’s expertise” were combined by averaging them to an overall report quality index. The internal consistencies of this index were high for all types of reports ($\alpha = .92$ for high-quality positive reports, $\alpha = .93$ for high-quality negative reports, $\alpha = .94$ for low-quality positive reports, and $\alpha = .94$ for low-quality negative reports). On this scale, participants rated high-quality positive reports as being superior compared with low-quality positive reports ($M = 5.83$, $SD = 1.82$ vs. $M = 3.75$, $SD = 2.05$), $t(202) = 7.68$, $p < .001$, and high-quality negative reports as being superior compared with low-quality negative reports ($M = 6.46$, $SD = 1.51$ vs. $M = 3.82$, $SD = 1.66$), $t(202) = 11.99$, $p < .001$. We also checked the proportion of times that participants receiving both high-quality and low-quality reports ($N = 98$) actually rated the former higher with regards to perceived quality. Participants did so 85% of the time, which is significantly different from chance, $\chi^2(1, N = 98) = 47.18$, $p < .001$. Furthermore, separate t tests against zero indicated that participants clearly detected that positive reports argued in favor of further investments ($M = 4.02$, $SD = 1.05$), $t(203) = 54.92$, $p < .001$, whereas negative reports presented arguments against further investments ($M = -4.25$, $SD = 0.97$), $t(203) = -62.54$, $p < .001$.

Information evaluation bias. The calculation of the information evaluation bias was similar to Experiment 3. A $2 \times 2 \times 2$ ANOVA revealed a significant main effect of responsibility on this bias, $F(1, 196) = 8.29$, $p = .01$, $\eta_p^2 = .04$, due to responsible participants evaluating the expert reports as being more in favor of reinvestment than did nonresponsible participants ($M = 0.17$ vs. $M = -0.31$). Additional analyses showed that responsible participants’ information evaluation bias was not significantly different from zero, $t(101) = 1.42$, $p = .16$, whereas nonresponsible participants’ evaluations were significantly biased in favor of withdrawal, $t(101) = -2.69$, $p = .01$. Although the difference between the two conditions replicates the corresponding finding in Experiment 3, the means are lower than in Experiment 3, and they suggest that the pattern is not driven by an evaluation bias in favor of reinvestment among responsible participants but rather by an

evaluation bias in favor of withdrawal among nonresponsible participants. However, if we take into account that our independent pretest sample had assessed the quality of the negative expert reports to be slightly higher than that of the positive expert reports ($\Delta = .22$), it might be that the values in our experiment somewhat underestimate the true bias, and if we add this difference to the obtained bias values, the results are fully in line with Experiment 3. No significant interactions of responsibility with one or both of the information quality manipulations were observed (all $F_s < 1.56$, all $p_s > .21$) (means and standard deviations can be derived from Table 4).⁵

Amount of reinvestment. A $2 \times 2 \times 2$ ANOVA revealed a significant main effect of responsibility on the amount of reinvestment, $F(1, 196) = 15.58, p < .001, \eta_p^2 = .08$, with responsible participants reinvesting more than nonresponsible participants ($M = 10.05$ vs. $M = 7.74$), thus replicating the classic responsibility effect as well as the findings of our previous experiments.

Furthermore, there were two significant main effects of report quality on amount of reinvestment. As predicted, participants reinvested more money when the quality of the positive reports was high as compared with when their quality was low ($M = 9.76$ vs. $M = 7.50$), $F(1, 196) = 10.87, p < .001, \eta_p^2 = .05$. Similarly, when quality of the negative reports was high, participants reinvested less money as compared with when their quality was low ($M = 7.73$ vs. $M = 9.65$), $F(1, 198) = 9.19, p = .003, \eta_p^2 = .05$. These results show that participants are strongly influenced by the additional information and its quality when making the subsequent reinvestment decision. The ANOVA revealed no significant interactions (all $F_s < 1$) (means and standard deviations can be derived from Table 4).

Mediation analysis. As in Experiment 3, we conducted a mediation analysis to show that the higher reinvestment of responsible as compared with nonresponsible participants is partially based on their more reinvestment friendly evaluation of the expert reports. Responsibility was dummy coded with 1 representing responsible participants and 0 representing nonresponsible participants. Responsibility significantly predicted the information evaluation bias ($\beta = .20$), $t(202) = 2.88, p = .004$. In a hierarchical regression analysis with amount of reinvestment as criterion variable, responsibility received a significant regression weight of $\beta = .26$, $t(202) = 3.77, p < .001$, in Step 1. In Step 2, information evaluation bias was included as a predictor and received a significant weight of $\beta = .51$, $t(201) = 8.48, p < .001$. At the same time, the weight for responsibility was now reduced to $\beta = .16$, $t(201) = 2.61, p = .01$. As a Sobel test (Sobel, 1982) indicates, this reduction is significant ($z = 2.73, p = .01$). Thus, partial mediation has been successfully shown.

In summary, the results of Experiment 4 replicate the main findings of Experiment 3: Responsible participants evaluated the expert reports as being more in favor of reinvestments than did nonresponsible participants, and this difference in information evaluation led to higher reinvestments among responsible as compared with nonresponsible participants. The fact that participants' reinvestments were strongly influenced by information quality shows that the additional information is taken into account for the final reinvestment decision, thereby strengthening our interpretation that experienced information quality can play a causal role in subsequent escalation.

Furthermore, the fact that we replicated our findings independent of our two information quality manipulations adds to the robustness of the findings. From a practical point of view, it shows that biased evaluation as a facilitator of escalation is not restricted to situations of high-quality information (as in Experiment 3); it also occurs in situations in which, as is often the case in practice, the quality of information is questionable.

General Discussion

Escalation of commitment is an important phenomenon in organizational decision making and has received much attention in the respective fields of research (e.g., Bazerman, 2002; Bazerman & Neale, 1992; Shapira, 2002). Information processing in escalation situations, however, has received little attention in escalation research so far. Information processing in escalation of commitment is especially important because most real-life decisions concerning reinvestments will not be made solely on the basis of performance data but rather after careful analyses of the available information on past performance and future prospects. In other words, almost all decision makers will search for and evaluate information prior to making the decision whether to continue with or terminate a failing project, and it is reasonable to assume that information search and evaluation will affect subsequent reinvestment decisions.

To address this as yet underinvestigated topic, we tested, in four experiments, whether the search for and/or the evaluation of additional information, which is available after the negative feedback has been received but before the reinvestment decision is made, is biased in favor of reinvestment and whether this bias contributes to escalation. At first glance, it seemed plausible that responsible decision makers are subject to both types of bias because usually persons who are responsible for the initial decision prefer the chosen alternative (Schulz-Hardt et al., 2009), and because preference-consistent biases have been demonstrated for both information search and information evaluation (e.g., K. Edwards & Smith, 1996; Frey, 1986).

However, we were skeptical whether such a bias would occur in information search because, for example, research on selective exposure to information has shown that selective exposure disappears when failure feedback on the initial decision is given (Frey, 1982) or when the situation is framed as a loss situation (Fischer et al., 2008). In line with this, in three experiments we found no evidence for selective exposure to information in escalating commitment; that is, neither participants who were responsible for failure nor participants in the other conditions predominantly searched for information supporting the initial choice or supporting reinvestment, respectively. Considering that no evidence for

⁵ The ANOVA further revealed a main effect of negative report quality; that is, the evaluation bias was smaller when negative reports were of high quality compared with negative reports of low quality ($M = -0.28$ vs. $M = 0.17$), $F(1, 196) = 7.59, p = .01, \eta_p^2 = .04$. The corresponding main effect for positive report quality was marginal, $F(1, 196) = 3.33, p = .07, \eta_p^2 = .02$, indicating a larger evaluation bias when positive reports were of high quality compared with positive reports of low quality ($M = 0.09$ vs. $M = -0.21$). Because both effects have no relevance for the predictions tested in this experiment, due to space considerations we do not discuss them here.

Table 4
Reinvestment and Information Evaluation Bias by Condition in Experiment 4

Condition	Responsibility				No responsibility			
	P+		P-		P+		P-	
	N+	N-	N+	N-	N+	N-	N+	N-
Information evaluation bias								
<i>M</i>	0.27	0.43	-0.17	0.18	-0.45	0.12	-0.81	-0.05
<i>SD</i>	0.94	1.38	1.31	1.23	1.11	1.19	1.15	1.05
Amount of reinvestment (in million Euro)								
<i>M</i>	10.19	11.66	8.33	10.17	7.88	9.85	5.61	7.58
<i>SD</i>	3.08	4.30	4.31	4.20	4.10	4.85	4.31	4.74

Note. Participants could reinvest up to €20 million in the initially supported division. Information evaluation bias is calculated as the difference between participants' evaluation of the information and the average evaluation of the same pieces of information by a neutral reference sample. High quality of positive and negative information is denoted with P+ and N+, respectively, whereas low quality of positive and negative information is denoted by P- and N-, respectively.

selective exposure was found despite one of the experiments containing an intensified manipulation of personal responsibility, and notwithstanding all of them being conducted under—according to the literature—nearly optimal conditions for selective exposure, and with a test power of at least .80 for small to moderate effect sizes, our claim that this type of bias is rather unlikely in escalation situations seems justified.

However, as we have outlined in the introduction, a balanced information search does not automatically mean that information processing is generally unbiased in escalating commitment. Instead, such biases may occur on a more subtle level, namely, on the level of information evaluation. On the basis of several lines of research showing that the evaluation of information is biased in accordance with people's beliefs and opinions (e.g., Ditto, Scarpansky, Munro, Apanovitch, & Lockhart, 1998; K. Edwards & Smith, 1996; Russo et al., 1996), we predicted that participants who are responsible for making the initial decision will evaluate the requested expert reports as being more in favor of reinvestment than nonresponsible participants; that is, the former will evaluate the quality of reports in favor of reinvestments more positively and the quality of reports against reinvestment more negatively than do the latter. This is exactly the pattern that we found in Experiments 3 and 4. Furthermore, these evaluations of information quality directly influenced reinvestment behavior; that is, participants who were responsible for the initial decision reinvested more money in the failing division than did nonresponsible participants, and part of this effect was due to the differences in information evaluation between these two groups. These findings show that biased evaluation of information is a process that facilitates the escalation of commitment and can help explain why people who are responsible for initiating a losing course of action continue to invest substantial amounts of resources into this course of action.

Theoretical Implications

Our findings on biased information evaluation as a psychological process fostering escalating commitment offer an interesting extension of the current psychological explanations for escalation, namely, self-justification (Brockner, 1992; Staw, 1976) and pros-

pect theory (Whyte, 1986). In both of the latter approaches, the decision maker escalates commitment although she has realized how negative the current situation is: Due to unwillingness to admit having made a mistake (self-justification) or due to heightened risk seeking in a loss situation (prospect theory), being aware of the negative economic situation does not lead to withdrawal. In contrast, in the case of biased information evaluation, the decision maker escalates commitment because she fails to realize how negative the situation really is, namely, because the biased evaluation leads to rather optimistic prospects. Whereas escalation as a result of self-justification or heightened risk seeking can be considered irrational, biased information evaluation is much more in line with a rational decision—the decision maker continues to reinvest because the perceived economic chances seem to imply this decision. Of course, rationality here has to be considered within the information-processing limits of the decision maker, and the biased evaluation effects that have been found across a wide range of domains (e.g., Ditto & Lopez, 1992; K. Edwards & Smith, 1996; Russo et al., 1996) are obviously an example of such a limit for (objective) information processing.

This view complements rather than contradicts the traditional psychological view of escalating commitment because biased evaluation, on the one hand, and self-justification and/or heightened risk seeking in the domain of losses, on the other, might simultaneously (or sequentially) be involved in the causation of escalating commitment. It is even possible that processes of self-justification underlie parts of the biased evaluation effects that we found: Previous research on biased information evaluation has shown that both cognitive and motivational factors contribute to such biases (Ditto & Lopez, 1992; Ditto et al., 1998; K. Edwards & Smith, 1996). Transferring the ideas and findings of Ditto et al. (1998) to the domain of escalation, it is possible that the desire to appear a competent decision maker makes reports in favor of withdrawal a particularly aversive experience (and reports in favor of reinvestment a particularly pleasing experience) for people who were responsible for initiating the chosen course of action. As a consequence, they accept information in favor of reinvestment at face value, whereas they critically scrutinize information in favor of withdrawal, thereby detecting weaknesses in the latter (but not the

former) pieces of information. However, similar differences in attention allocation can also stem from pure cognitive inconsistency with the person's preference (K. Edwards & Smith, 1996), and as responsible decision makers almost always prefer the alternative they have chosen themselves (Schulz-Hardt et al., 2009), such processes rather than self-justification might also drive the biased evaluation effects that we found. Clarifying the cognitive and/or motivational underpinnings of biased information evaluation in escalating commitment is a fruitful avenue for further research.

Practical implications. As escalating commitment is usually seen as something that is to be avoided, various studies have addressed the question of how it can be reduced or eliminated. The focus of these studies mirrors that of the psychological attempts to explain escalation, namely, self-justification and prospect theory approaches. For example, Simonson and Staw (1992) tested various interventions that should affect self-justification tendencies among the decision makers. Reduction of threats to the decision maker and shifting accountability from the outcome to the process of decision making successfully lowered escalating commitment, whereas facilitating elaboration of the case information failed to do so. Barton, Duchon, and Dunegan (1989) investigated whether reframing the loss situation might prevent heightened risk seeking after negative feedback, but this intervention did not have any effect on escalating commitment.

Our findings indicate that it might be useful to complement such approaches with measures aimed at debiasing the decision maker's information evaluation. A technique that has already been shown to successfully counteract preference-consistent information evaluation is "consider the opposite" (Lord, Lepper, & Preston, 1984). Consider the opposite requires the person to process arguments not only from her own perspective but also from the perspective of someone who holds an opposing opinion (for a more general form of this technique, see Hirt & Markman, 1995). Transferred to an escalating commitment situation, this would mean that, after the negative feedback has occurred, a decision maker who has made the initial decision should first evaluate the available information from her own perspective. Then, she should change this perspective and ask herself what someone who was against the initial decision would think about the available information. After evaluating the available information from these two opposing perspectives, she makes the final reinvestment decision. Theoretically, we would expect this person to evaluate information unbiasedly and to subsequently show less escalating commitment compared with someone who does not use this technique—but empirical tests are needed to show whether this technique can really provide a successful intervention against escalating commitment.

Limitations and Future Research

When evaluating the findings presented in this article, some limitations of our study should be taken into account. The first is that our experiments—similar to most other experimental studies on escalation of commitment—have limited external validity, which is rooted in the use of simple decision scenarios and student samples. One elegant way for future research to test the external validity of our findings is to replicate them using both a more complex decision scenario, such as a microworld (see, e.g., DiFonzo, Hantula, & Bordia, 1998), as well as a nonstudent sample

consisting of actual decision makers, such as managers or entrepreneurs.

Another limitation is that, with regard to organizational and contextual factors that affect biased information processing in escalation situations, we have focused on responsibility for the initial decision. We consider this to be a highly plausible starting point, both given that responsibility is perhaps the most studied independent variable in escalation research and that clear theoretical predictions could be derived for its influence on biased information processing in escalating commitment. However, it is clear that many other factors may also be relevant for information search and evaluation in escalation situations in general, and for biases in favor of reinvestment in particular. To give just one example, time pressure during decision making could affect biased evaluation. Interestingly, although time pressure is usually associated with reduced decision quality (Payne, Bettman, & Luce, 1996), it might actually decrease an information evaluation bias due to less critical evaluation of preference-inconsistent information (Ditto et al., 1998) and might, thereby, counteract escalating commitment. Testing such a counterintuitive effect of contextual variables is an interesting avenue for future research.

Similarly, personal factors like, for example, expertise in the topic at hand have been neglected in our study. There is evidence suggesting that increased expertise can sometimes lead to qualitatively different and quantitatively increased information search due to more efficient information processing (e.g., Brucks, 1985), whereas in other cases it can induce reduced information search because expertise can compensate for lack of information (e.g., Nass, 1994). In our experiments, we did not measure expertise or its potential influence on information search and/or evaluation, although our participants' expertise may well have varied. Due to randomized assignment of participants to the different experimental conditions, these potential effects of expertise should have resulted in unexplained variance and should not systematically have affected our results. However, investigating to what extent decision makers' expertise might ameliorate or aggravate biases in information processing in escalation of commitment seems a promising endeavor for the future.

Finally, the measurement of our dependent variables was limited to two particular steps (search and evaluation) in the general process of dealing with new information. These two steps are essential when the decision maker processes information for herself, thinking about whether and to what extent a reinvestment in the chosen course of action is reasonable. However, if we take the larger institutional context of such decisions into account, other biases in the handling of information that were outside the focus of the present research might also come into play. For example, the disclosure of information to superiors or colleagues might be biased in favor of the person's initial decision (Caldwell & O'Reilly, 1982), or people might even try to manipulate information in order to avoid getting blamed for failure. Investigating the general handling of information in institutional contexts is an interesting challenge for escalation research in the future.

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