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# Debiasing Omission Neglect

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**Abstract:** *Two experiments investigated the effectiveness of two new procedures for improving judgment by increasing sensitivity to missing information. When consumers are insensitive to important missing information, overly extreme product evaluations are formed. However, when consumers are sensitive to important missing information, they form more moderate and appropriate evaluations. Sensitivity to missing information was increased by encouraging consumers to consider their criteria for judgment before receiving product information (Experiment 1) and by asking consumers to rate presented and missing product attributes before providing overall product evaluations (Experiment 2). Both procedures were effective for improving judgment by reducing omission neglect.*

## 1. Introduction

Advertisements, brochures, pamphlets, and other promotional materials typically provide information that marketers want consumers to know and typically omit information that marketers do not want consumers to know. Although consumers often recognize that marketers are not impartial providers of information, consumers typically rely heavily on presented information at the expense of other information that marketers fail to mention. Omission neglect, or insensitivity to missing or unmentioned options, attributes, or issues, occurs when consumers form inappropriately extreme evaluations on the basis of weak evidence (Sanbonmatsu et al., 1992, 2003, 1997, 1991).

For example, products described by a small amount of information are often evaluated as extremely and confidently as products described by a large amount of information. This occurs because consumers overestimate the diagnosticity or information value of the presented evidence when the limitations of the evidence are overlooked. Even a little evidence seems like a lot when omissions are not apparent.

Under some conditions, consumers are more sensitive to omissions, and this prompts them to adjust their judgments in light of evidential limitations. When consumers are highly knowledgeable regarding the target product, and when the judgmental context contains cues or

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reference points, the salience of missing information is increased, and judgments are adjusted toward more normatively appropriate moderate evaluations (Muthukrishnan and Ramaswami, 1999; Sanbonmatsu et al., 1991, 1992, 1997, 2003).

This study investigates the effectiveness of two new procedures for reducing omission neglect: asking consumers to consider their criteria for judgment before receiving product information (Experiment 1), and asking consumers to rate presented and missing product attributes before providing overall product evaluations (Experiment 2). We expected that each of these procedures would heighten cognizance of missing information, and accordingly that each would be a useful technique for debiasing consumers' tendency for omission neglect.

## **2. Experiment 1**

The purpose of Experiment 1 is to investigate the effectiveness of a priori criteria consideration as a technique for improving judgment by increasing sensitivity to omissions. Half of the participants were instructed to consider their criteria prior to receiving product information. We predicted that the activation of standards prior to exposure to the automobile description would reduce evaluation extremity and diminish estimations of the perceived sufficiency of the given information.

### **2.1. Methods**

Seventy-one undergraduates participated in groups of 2 to 4 and were randomly assigned to one of two conditions (criteria consideration vs. no criteria consideration). Participants in a study of "product perceptions" read a transcript from a fictional radio program called the "Auto Spot" sponsored by "Consumer Advocates". All participants received a description of a compact car model labeled the "Model A". The "Model A" was always described in terms of price (under \$12,000) and three positive attributes. The three positive attributes describing the "Model A" were varied with one of three different sets of three attributes being presented. Participants were told that the program had been transcribed exactly, except that the name or names of the automobile model had been replaced with pseudonyms. All of the automobile attributes were highly favorable.

Prior to receiving the transcript containing the information about the "Model A", half of the participants were prompted to consider which attributes are the most important to consider in the assessment of an automobile. Participants were specifically asked to rank order nine automobile attributes in terms of their importance. The nine attributes that were ranked were those making up the three descriptions used in the experiment. In addition to rank ordering the attributes

participants were asked to provide a brief (8 lines or less) explanation for their rankings. That is, they were asked to explain “why the attributes that you ranked high are more important to you than the attributes that you ranked low”. After reading the transcript, participants evaluated the “Model A” automobile, assessed the sufficiency of the information presented, and indicated their confidence in their evaluation. Evaluation was measured on a 9 point scale anchored by  $-4 =$  “Highly unfavorable” and  $+4 =$  “Highly favorable”. Confidence was measured on a 9 point scale anchored by  $-4 =$  “Not at all confident” and  $+4 =$  “Highly confident”. Sufficiency was measured on a 10 point scale anchored by  $0 =$  “Not at all enough” and  $9 =$  “Highly sufficient”. The midpoint of the scale (between 4 and 5) was labeled “Somewhat sufficient”.

## 2.2. Results and discussion

The counterbalancing of the sets of attributes describing the “Model A” automobile is ignored in the reported analyses, as it was not of primary theoretical interest and did not interact significantly with the experimental manipulation to affect any of the primary measurements.

We conducted a series of regressions to explore the role of criteria consideration on evaluations, confidence, and the perceived sufficiency of the given information. As expected, evaluations of the Model A tended to be much less extreme ( $M_s = 1.81$  vs.  $2.69$ ),  $b = -.88$ ,  $t(69) = -2.82$ ,  $p = .006$ , and participants expressed much less confidence in their evaluations, ( $M_s = 1.02$  vs.  $1.91$ ),  $b = -.89$ ,  $t(68) = -2.21$ ,  $p = .03$ , when the criteria for evaluating an automobile were first considered as opposed to not. Further analysis indicated that participants who were prompted to be cognizant of their evaluative criteria perceived the given information to be much less sufficient than participants who did not first consider their evaluative criteria ( $M_s = 3.42$  vs.  $5.46$ ),  $b = -2.04$ ,  $t(69) = -4.03$ ,  $p < .001$ .

We performed additional analyses using the procedure recommended by Baron and Kenny (1986) to examine the extent to which the weighting of the evidence mediated the effects of considering the criteria on evaluations of the “Model A” automobile and confidence in evaluations. Because direct measurements of the perceived importance of the presented vs. non-presented attributes were not available, the sufficiency judgments served as the estimate of the weighting of the given evidence. A series of regressions that complement those reported earlier produced outcomes that met all of the Baron and Kenny mediation criteria for both dependent variables. Specifically, there were significant associations between the perceived sufficiency of the given information and evaluations,  $b = .36$ ,  $t(69) = 6.57$ ,  $p < .001$ , as well as confidence,  $b = .37$ ,  $t(68) = 4.70$ ,  $p < .001$ . A model in which both the consideration of criteria and the perceived sufficiency of the given information were used to predict evaluations revealed a significant effect of the

proposed covariate,  $b = .35$ ,  $t(68) = 5.63$ ,  $p < .001$ , but the previously significant effect of the consideration of criteria became non-significant,  $b = -.17$ ,  $t(68) = -.59$ ,  $p = .60$ . Similarly, a model in which confidence was regressed on each of these predictors revealed a significant effect of perceived sufficiency of the given information,  $b = .35$ ,  $t(67) = 4.01$ ,  $p < .001$ , but the previously significant effect of the consideration of criteria became non-significant,  $b = -.20$ ,  $t(67) = -.50$ ,  $p = .62$ . These results are summarized in the top panel of the Appendix.

Finally, Sobel tests confirmed that the effects of consideration of the criteria on evaluation,  $z = -3.44$ ,  $p < .001$ , and confidence in evaluation,  $z = -2.00$ ,  $p < .05$ , were mediated by altered perceptions of the sufficiency of the information. Overall, these results demonstrate that heightened cognizance of the standards to be used in judgment prior to stimulus exposure contributes to more moderate judgment by attenuating the subjective weighting of the presented attributes.

### **3. Experiment 2**

The purpose of Experiment 2 is to investigate the effectiveness of rating presented and missing attributes before providing overall evaluations as a technique for improving judgment by increasing sensitivity to omissions. Half of the participants rated attributes before and half rated attributes after providing overall evaluations. We predicted that the before condition would be effective, particularly for participants low (vs. high) in the need for cognitive closure (Kruglanski and Webster, 1996). A high need for cognitive closure refers to a desire to form judgments as quickly as possible and to maintain these judgments for as long as possible. As the need for cognitive closure increases, consumers are more likely to draw snap judgments that have obvious implications for action. This often involves heuristic processing and focusing selectively on information that is particularly easy to process. Information that is difficult to process, such as missing information, is frequently ignored.

Conversely, individuals low in the need for cognitive closure are more concerned about accuracy than speed. Consequently, such individuals are more sensitive to information that is difficult and time-consuming to process, such as missing information. We predict that low need for cognitive closure individuals should be sensitive to omissions across conditions and should therefore be less influenced by debiasing techniques. Because high need for cognitive closure individuals are generally insensitive to omissions, increasing sensitivity using the attribute rating before evaluation debiasing technique should be particularly effective for these individuals.

As an exploratory variable, half of the participants received the product information in an

attribute list format and half received this information in a narrative format. Prior research suggests that consumers may be less sensitive to omissions when product information is represented holistically rather than in a piecemeal fashion (Adaval and Wyer, 1998).

### **3.1. Methods**

One hundred twenty one undergraduates were randomly assigned to order (rate attributes before or after providing overall evaluations) and format (list or narrative) conditions, and were blocked into high or low need for cognitive closure conditions based on a median split performed on their scores on the Need for Cognitive Closure scale (Webster and Kruglanski, 1994).

Participants received information, ostensibly excerpted from an ad, about a new digital camera referred to as brand X. Information about five favorable attributes was presented either in an attribute list format or in a narrative format that stated:

“Imagine that you are planning a vacation to beautiful Hawaii. With your new [brand X], you now have 3 megapixels of picture resolution at your fingertips. The [brand X] is compact and lightweight (10 ounces), which means you can carry it with you almost anywhere. With its long flash range (15 feet) and long battery life (450 shots), it is easy to take many beautiful pictures of palm trees, beaches, and all of the wonderful sights you would expect to see in a tropical island paradise”.

Half of the participants rated the five presented attributes (number of megapixels, size, weight, flash range, battery life) and three missing attributes (price, picture quality, zoom lens) before providing overall evaluations and half provided overall evaluations first. The attributes were rated on scales ranging from 1 (very bad) to 7 (very good). Overall evaluations were rated on a scale ranging from 1 (very bad) to 7 (very good) and participants rated how confident they were that their overall evaluations would be similar to the rating published in *Consumer Reports* on a scale ranging from 1 (not at all confident) to 7 (very confident). Participants rated how much information was missing from the ad on a scale from 1 (not very much was missing) to 7 (very much was missing) and they indicated their satisfaction with the amount of information presented in the ad on a scale from 1 (not at all satisfied) to 7 (very satisfied).

### **3.2. Results and discussion**

A 2 (measurement order: attribute ratings first or overall evaluations first) × 2 (format: attribute list or narrative) × 2 (high or low need for cognitive closure) ANOVA performed on overall evaluations yielded main effects for order,  $F(1, 113) = 4.64, p < 0.04$ , and for format,  $F(1, 113) = 4.12, p < 0.05$ , and an order by need for cognitive closure interaction,  $F(1, 113) = 4.15, p < 0.05$ . More favorable evaluations were formed in attribute after and narrative conditions. More importantly, the interaction showed that individuals low in the need for cognitive closure were

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spontaneously sensitive to omissions across conditions, and therefore, did not benefit from rating attributes before versus after overall evaluations ( $M_s = 4.90$  vs.  $4.97$ , respectively,  $t < 1$ ). By contrast, individuals high in the need for cognitive closure formed more moderate evaluations in before than in after conditions ( $M_s = 4.78$  vs.  $5.46$ ),  $t(119) = 4.00$ ,  $p < 0.001$ , indicating that rating presented and missing attributes before providing overall evaluations increases sensitivity to omissions and decreases evaluation polarization.

A  $2 \times 2 \times 2$  ANOVA performed on confidence judgments showed that overall evaluations were held with greater confidence in narrative than in list conditions ( $M_s = 4.23$  vs.  $3.67$ ),  $F(1, 113) = 3.93$ ,  $p = 0.05$ . Confidence also tended to be higher when attributes were rated after rather than before providing overall evaluations, but this trend was non-significant,  $F(1, 113) = 2.22$ ,  $p = 0.14$ .

A  $2 \times 2 \times 2$  ANOVA performed on perceptions of missing information yielded a main effect for order,  $F(1, 113) = 10.10$ ,  $p < 0.01$ . Participants were more sensitive to omissions and indicated that more information was missing when attributes were rated before rather than after providing overall evaluations ( $M_s = 5.08$  vs.  $4.20$ ). Hence, asking consumers to rate presented and missing attributes before providing overall evaluations is an effective technique for increasing sensitivity to omissions. Rating attributes after providing overall evaluations, however, is ineffective because once consumers form a holistic mental representation of a product, it becomes difficult to analyze the product in terms of its discrete components (Wyer, 2004).

A  $2 \times 2 \times 2$  ANOVA performed on satisfaction with the amount of information presented revealed that participants were less satisfied with the amount presented when attributes were rated before rather than after providing overall evaluations ( $M_s = 2.79$  vs.  $3.82$ ),  $F(1, 113) = 17.26$ ,  $p < 0.001$ . Satisfaction also tended to be lower when the need for cognitive closure was low as opposed to high ( $M_s = 3.13$  vs.  $3.47$ ),  $F(1, 113) = 2.87$ ,  $p < 0.10$ . The order by need for cognitive closure was marginally significant,  $F(1, 113) = 2.57$ ,  $p = 0.11$ . The order manipulation tended to have a larger effect on the satisfaction judgments of individuals high (vs. low) in the need for cognitive closure.

Considered together, the results show that rating presented and missing attributes before (but not after) providing overall evaluations increases sensitivity to omissions and results in more moderate overall evaluations. To provide direct evidence that perceptions of missing information mediate the effects of measurement order (attribute ratings first or overall evaluations first) on evaluation extremity, we conducted a mediation analysis using the procedure recommended by Baron and Kenny (1986). First, order predicted evaluation extremity,  $b = .36$ ,  $t(119) = 2.10$ ,  $p < 0.04$ , and perceptions of missing information,  $b = -.88$ ,  $t(119) = -3.26$ ,  $p < 0.001$ . In addition,

perceptions of missing information predicted evaluation extremity,  $b = -.20$ ,  $t(119) = -3.60$ ,  $p < 0.001$ . When order and perceptions of missing information were entered simultaneously in the regression model predicting evaluation extremity, the effect of perceptions of missing information remained significant,  $b = -.18$ ,  $t(119) = -3.12$ ,  $p < 0.01$ , but the direct effect of order did not,  $b = .21$ ,  $t(119) = 1.20$ ,  $p = 0.24$ . A Sobel test revealed that the difference in the direct effect between the non-mediated and mediated models was significant,  $z = 2.24$ ,  $p < 0.03$ . Hence, the effect of measurement order on evaluation extremity was mediated by perceptions of missing information. These results are summarized in the bottom panel of the Appendix.

Although consumers are often insensitive to omissions, detecting omissions is a critical precursor to inference formation. Consumers cannot infer values for missing information if they fail to notice that information is missing. In the present study, perceptions of missing information were higher and satisfaction with the amount of information presented was lower when attribute ratings were measured prior to (rather than after) overall evaluations. Consequently, the omission neglect model suggests that inference formation should be more likely when attributes were measured prior to overall evaluations. In addition, inferences should have a greater influence on overall evaluations when attributes were measured prior to overall evaluations. Both of these effects, however, should occur only when consumers possess an implicit theory that connects the presented information to the missing information (Kardes and Sanbonmatsu, 1993). If consumers assume that presented and missing attributes are correlated, they can infer values of missing attributes from values of presented attributes.

To test the hypothesis that inference formation was more likely when consumers were sensitive to omissions, an inference judgment index was formed by averaging ratings of the three missing attributes (price, picture quality, zoom lens). A 2 (order)  $\times$  2 (format)  $\times$  2 (need for cognitive closure) ANOVA performed on this index yielded a significant main effect for order,  $F(1, 113) = 5.63$ ,  $p < 0.02$ . As expected, more favorable inferences were formed when consumers were sensitive to omissions because attribute ratings were measured before (vs. after) overall evaluations ( $M_s = 4.34$  vs. 3.81).

An index of ratings of presented attributes was formed by averaging ratings of the five presented attributes (megapixels, size, weight, flash range, battery life). A 2  $\times$  2  $\times$  2 ANOVA performed on this index revealed no significant main effects or interactions. Ratings of the presented attributes were consistent across the experimental conditions. This result is consistent with prior research showing that consumers overestimate the importance of presented attributes regardless of which subset of attributes is presented (Sanbonmatsu et al., 2003).

To test the hypothesis that inferences should have a greater influence on overall evaluations when attributes were measured prior to (vs. after) overall evaluations, the correlations between inferences and overall evaluations in attribute ratings first versus evaluations first conditions were examined. Inferences were more strongly correlated with evaluations when attribute ratings were measured first than when overall evaluations were measured first ( $r_s = .56$  vs.  $.18$ ),  $z = 2.41$ ,  $p < 0.01$ . By contrast, correlations between ratings of presented attributes and overall evaluations did not differ as a function of measurement order ( $r_s = .42$  vs.  $.46$ ),  $z = 0.27$ ,  $p = 0.79$ . This pattern suggests that inferences have a greater impact on overall evaluations when consumers are sensitive (vs. insensitive) to omissions. Sensitivity to missing information is an important precondition for the formation of meaningful inferences that influence other judgments.

#### **4. General discussion**

Consumers have become accustomed to using whatever evidence is readily available to them, even limited evidence, at the expense of other information that marketers fail to mention. Omission neglect — or insensitivity to missing or unmentioned attributes, options, or issues — is particularly problematic given the nature of the world in which we live. The amount of information used to describe different types of alternatives — such as various products, services, political candidates, job applicants, defendants, medical procedures, public policies, etc.—varies dramatically as a function of advertising, interviews, reports, and media coverage. Nevertheless, when people are insensitive to omissions, they form overly extreme judgments regardless of how much or how little is known about the object of judgment (Sanbonmatsu et al., 1991, 1992, 1997, 2003). When information is limited, extreme (vs. moderate) judgments are less accurate (Griffin and Tversky, 1992), less readily updated (Cialdini et al., 1973), and less justifiable (Lerner and Tetlock, 1999).

Although people typically neglect omissions, the present research shows that it is possible to debias omission neglect by increasing the salience of missing information. Two new debiasing procedures for increasing sensitivity to missing information were investigated: asking consumers to consider their criteria for judgment before receiving product information (Experiment 1), and asking consumers to rate presented and missing product attributes before providing overall product evaluations (Experiment 2). Both debiasing procedures were shown to be effective.

The two procedures differ because a priori criteria consideration involves ranking attributes for importance before receiving a product description, whereas a priori attribute rating involves evaluating attributes before providing an overall evaluation. The two procedures are

similar because both involve comparing information presented in a product description to a set of criteria. The omission neglect model also suggests that to be effective, both procedures should be implemented before an overall evaluation of a target product is formed. Once an overall evaluation is formed, insufficient adjustment of the evaluation occurs even if the implications of subsequently encountered evidence are inconsistent with the evaluation (Gilbert, 2002; Johar and Simmons, 2000). Moreover, presented information may interfere with the ability to generate or to evaluate missing information. Inhibitory control mechanisms suppress distraction due to cue competition, which may decrease the accessibility of missing information (Anderson, 2003).

The present research shows that generating criteria before receiving a product description (Experiment 1) and evaluating criteria before forming an overall evaluation of a product (Experiment 2) result in more moderate evaluations of a target product. In both experiments, the effects of generating or evaluating criteria on evaluation were mediated by sensitivity to omissions. In Experiment 1, sensitivity to omissions was measured via the perceived sufficiency of the presented evidence. In Experiment 2, sensitivity to omissions was measured via perceptions of the amount of information that was missing. The two measures provide converging support for the critical role of sensitivity to omissions in evaluative judgment.

The need for cognitive closure was shown to be an important moderator of the effectiveness of evaluating criteria before forming an overall evaluation (Experiment 2). Individuals high in the need for cognitive closure are less sensitive to omissions because thinking about omissions is difficult, and difficult cognitive tasks delay closure. As a consequence, individuals high (vs. low) in the need for cognitive closure benefit more from the use of debiasing techniques that increase sensitivity to omissions. However, the role of the need for cognitive closure in generating criteria prior to exposure to product information is unclear because the need for cognitive closure was not measured or manipulated in Experiment 1. Future research should address this important issue.

#### **4.1. Managerial implications**

The most general managerial implication arising from this study is that consumers typically are insensitive to the absence of information that would be quite relevant for their judgments and decisions. Thus, marketers may often find a strategy of selectively presenting information that is favorable to a brand, both absolutely and relative to competitors, while omitting unfavorable information, to be quite successful. The success of a selective presentation strategy, though, is not assured. In our experiments when consumers either were prompted to consider their criteria prior to making judgments or asked to rate the target brand on a more complete set of its

constituent attributes prior to judgment making, they were more sensitive to information omission, and made more normatively appropriate moderate brand judgments. Understanding how these factors can disrupt consumers' default insensitivity to missing information is important for marketers, whether they want to encourage or discourage omission detection.

Marketers may sometimes wish to leverage consumers' typical insensitivity to omissions. In such instances marketers should endeavor to preclude the omitted information from becoming salient. One means of accomplishing this aim is creating marketing designed to prevent consumers from reflecting on their criteria, and correspondingly generating the desire to acquire relevant information that is absent in the judgmental context. Specifically, impeding consumers' willingness and or opportunity to carefully reflect on the target brand may be fruitful. For example, marketing could be aimed at creating urgency through use of fear appeals, a scarcity manipulation, induced time pressure ("act now!"), or an exploding offer. When consumers are unwilling or unable to carefully reflect on a brand, they are very likely to form fast judgments based on the available information, and unlikely to either consider their criteria or try to generate attributes about which they have no information. The strategies noted above may be particularly useful because they also may induce high need for closure — a condition in which sensitivity to omissions is unlikely.

In addition to reducing the likelihood of missing information generation, marketers can facilitate omission neglect by ensuring that context does not make information missing from the description of a particular brand salient. For example, automobile manufacturers offer their brands for sale in exclusive dealerships that present only one brand. Thus, the manufacturer can define the evaluative agenda consistent with brand strengths, while not mentioning liabilities. Moreover, salespeople sometimes offer deals that expire if the consumer leaves the dealership. This is likely to be a useful sales approach if the consumer is prevented from visiting another dealer, who is likely to be highlighting a different set of attributes. As another example, boutique stores often present only one or a few brands in an attempt to reduce the likelihood of competing brands highlighting each other's weaknesses. Finally, marketers should consider obtaining guarantees when making media buys that no competing brands will be advertised in proximity to their advertisements.

While marketers may often take advantage of omission neglect, in other instances it may be important to prevent or counter a competitor's selective presentation strategy. One reason why continuous advertising is efficacious in maintaining market share is that the attributes on which a target brand excels are less likely to go unconsidered if brand and attribute knowledge are highly

accessible in consumers' minds. Market leaders may be particularly susceptible to the selective presentation strategies of weaker competitors, thus it will be important to continue reminding consumers of a target brand's strengths. Indeed, if a marketer fails to make a target brand's relative strengths salient, these features that normatively should favorably impact brand evaluation and choice are unlikely to be weighed in judgment, and competitors are likely to reap market share that rightfully should be enjoyed by the target brand.

Finally, our results have implications for consumer welfare. To the extent that consumers exhibit omission neglect in their brand judgments, they are likely to make suboptimal decisions. If individuals are taught of their chronic insensitivity to missing information, they may be more critical consumers of marketing, and more likely to evaluate available information using their own preconceived judgmental criteria. Thus, important omissions from product descriptions are likely to be recognized, judgments are likely to be more accurate, which in turn will facilitate more satisfying decision making.

## Notes

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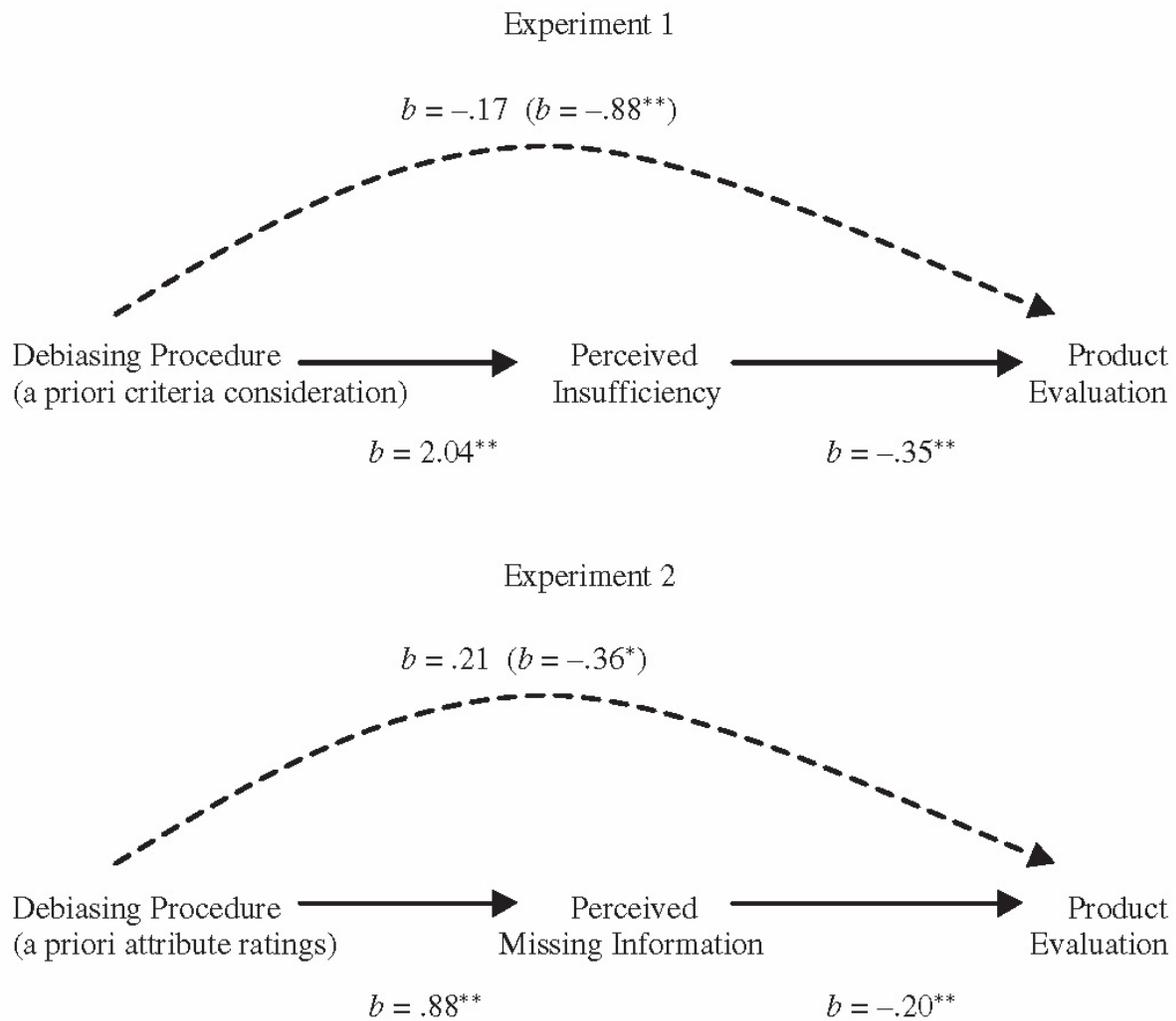
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## Appendix Mediation analyses



Note. \*Indicates significant effects at  $p < .05$ ; \*\*indicates significant effects at  $p < .001$ . The values in parentheses represent the direct effect of the debiasing procedure on product evaluations before perceived insufficiency (Exp. 1) and perceived missing information (Exp. 2) were added to the models.