Marketing Letters 12:2, 131–144, 2001

Does Greater Amount of Information Always Bolster Attitudinal Resistance?

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Received August 1999; Revised March 2000; Accepted August 2000

Abstract

Previous research suggests that attitudinal resistance to information that challenges a prior evaluation increases with the amount of information underlying the prior evaluation. We revisit this proposition in a context in which a set of important claims about a target brand are presented either alone—a lower amount of "isolated" information—or along with other favorable, but less important claims—a higher amount of "embedded" information. Results from two experiments show that when the challenge occurs immediately after the initial evaluation, a greater amount of "embedded" initial information does produce greater attitudinal resistance. However, when the challenge occurs after a delay, a lesser amount of "isolated" information produces greater attitudinal resistance. The findings qualify previous assumptions about the role of prior information in attitudinal resistance, and support a constructive view of judgment revision and attitudinal resistance.

Key words: attitude resistance, judgment revision, memory and decision making

1. Information and Judgement Revision

Consumers' evaluations of products and brands are often subject to challenges from competitors or from neutral sources. For example, a consumer who initially liked a new product after seeing its promotional material may have to revisit this opinion after reading an unfavorable review of the product in a magazine. Prior research suggests that the extent to which consumers revise their prior evaluations after a challenge depends partly on the amount of attitude-relevant and consistent information available when the consumer

encounters the challenge (e.g., Wood 1982). According to this prior research, the greater the amount of attitude-relevant and consistent information available in memory, the greater the attitudinal resistance to counterattitudinal information. Therefore, providing more information that is relevant to and consistent with the initial evaluation should generally cause less revisions upon a subsequent challenge. This paper identifies conditions under which a *lesser* amount of initial information produces greater resistance to challenges.

1.1. Amount of Information Increases Attitudinal Resistance

Various streams of research suggest that the quantity of proattitudinal information about an object should increase resistance to subsequent counterattitudinal challenges. For example, Anderson's (1981) averaging models of evaluations would predict that because the counterattitudinal information would be averaged with prior information, a larger amount of prior information would produce a smaller deviation from the initial evaluation than a smaller amount. Similarly, Hogarth and Einhorn (1992) proposed that in belief-updating tasks, when judges receive information contrary to their prior beliefs, longer series of prior information would result in a "primacy effect" (i.e. a position consistent with the initial judgment), whereas shorter series may result in a "recency effect" (i.e. a position consistent with the new information that contradicts prior beliefs).

In attitude research, Wood (1982) found that a retrieval of a larger number of attitude-consistent beliefs led to greater resistance to challenges. More recently, Wood, Rhodes, and Biek (1995) proposed that "working knowledge," which they defined as the "amount of information relevant to the attitude object," is an important determinant of resistance (p. 285). While in Wood's program of research the amount of information available was measured at the time participants encountered a challenge, Haugtvedt et al. (1994) manipulated the amount of information to test its effect on attitudinal resistance to a counterattitudinal message. They found that subjects who had been previously exposed to nine product claims revised their initial attitudes less than did subjects who had been exposed to only three claims.

1.2. Isolated versus Embedded Learning of Important Claims

We believe that an important condition for the amount of initial information to consistently reduce subsequent judgment revision is that the information be homogeneous in its compellingness—a condition that apparently held in Haugtvedt et al. (1994). In the real world, however, it is often difficult to present a large number of product claims of equal importance. Therefore, marketers often have to decide between (a) presenting a small set of important claims by themselves and (b) presenting a larger set of claims of mixed importance. We call those situations in which the most important product claims are presented alone as *isolated learning contexts* and those in which the most important claims are presented with other less important claims as *embedded learning contexts*. The objective of this paper is to compare the effects of the two strategies on judgment revision

under two different conditions: when the challenge immediately follows the initial evaluation, and when there is a delay between the initial evaluation and the challenge.

1.3. The Immediate Challenge Case

Let us consider the situation where consumers form a favorable initial evaluation based on some positive information about a brand; then, soon after, receive negative information about the brand. We predict that resistance will be higher—that is, downward judgment revision will be lesser—in the embedded (higher amount of information) condition than in the isolated (lesser amount of information) condition. First, because there is no delay, memory for the most important claims should be equally good across the two contexts (isolated and embedded). Second, because they are positive (although less compelling), the extra claims may offer additional arguments to defend the initial evaluations against the challenge. Third, because additional information can increase judgmental confidence (Oskamp 1965; Peterson and Pitz 1988), confidence in the initial evaluation may be greater in the embedded condition. Therefore, when the challenge is immediate, the additional, less important claims should bolster the initial evaluation and cause greater attitudinal resistance.[1]

1.4. The Delayed Challenge Case

When there *is* a delay between the initial evaluation and the counterattitudinal challenge, recall of the prior information may have a significant influence on revision. First, consumers may use the recalled information to defend their prior evaluations. Alternatively, consumers may combine the recalled information with the information contained in the challenge to arrive at a modified evaluation. In either case, recall of the most compelling target information should reduce the magnitude of downward revision. The principle of retroactive interference (e.g., Alba and Chattopadhyay 1985) suggests that important claims will be more memorable when presented alone than when presented with other, not-so-important claims. Thus, stronger claims, when they are learned in isolation at the time of attitude formation (isolated learning), may be more memorable than when they are embedded with other not-so-strong claims (embedded learning). In as much as the extent of judgment revision is determined by the compellingness of the set of recalled claims, the isolated (lesser amount of information) condition should result in greater resistance to challenges than the embedded (higher amount of information) condition. This effect may occur despite the fact that additional positive information may yield more favorable initial evaluations and greater judgmental confidence in the embedded condition than in the isolated condition. This phenomenon is analogous to the dilution effect in prediction tasks that suggests that providing a mixture of diagnostic and nondiagnostic information causes subjects' predictions to be less extreme than providing only diagnostic information (Nisbett, Zukier, and Lemley 1981). We extend previous research on the dilution effect by showing that the phenomenon applies also (1) when

[1]Whether the initial evaluations would be more or less favorable (extreme) in the isolated versus embedded conditions depends on whether the initial evaluations are based on an additive or averaging process.

there is a delay between the learning of the target information and the target evaluation, (2) to judgment revision as opposed to judgment formation, and (3) to attitudinal judgments as opposed to predictive judgments.

2. Experiment 1

The objective of Experiment 1 was to test the effects of the amount of initial information on judgment revision under immediate versus delayed challenges. We predicted that, when the challenge is immediate, an embedded presentation (greater amount of information) would lead to less revision (greater resistance) than a isolated presentation (lesser amount of information). However, when the challenge is delayed, an embedded presentation would lead to greater revision (less resistance) than an isolated presentation.

2.1. Method

2.1.1. Subjects and Design. Subjects were 144 business undergraduates who participated in the study for course credits. They were randomly assigned to one of four experimental conditions of a 2×2 (information-by-delay) between-subjects design. Two control groups ($n = 22$) were additionally used within the high-delay condition. The treatment of the experimental and control groups was the same, except that the subjects in the control groups were not exposed to the challenge. The control groups allow us to gauge the degree of judgment revision after a delay in the absence of a challenge (i.e. attitudinal persistence).

2.1.2. Procedure. Subjects were asked to participate in a "pen evaluation" study conducted by a market research firm. They received some initial attribute information about a fictitious pen. The stimuli (the brand name and several product claims) were modeled after those described in Haugtvedt et al. (1994). Subjects were given five minutes to process the initial product information. They then rated the product on three evaluative scales and indicated their confidence in these evaluations. Subjects received additional, negative information about the product (the challenge) either immediately after the initial evaluations or after a forty-minute delay. Product evaluations and judgmental confidence were then reassessed. Finally, subjects were asked to recall the information provided at the time of initial evaluation formation.

2.1.3. Information. This factor manipulated whether subjects were exposed to the three most important claims about the target (isolated learning of three claims) or whether they were exposed to the same three claims embedded among six other positive but less important claims (embedded learning of nine claims). The claims were selected after a preliminary pretest, and their relative importance was determined by another pretest among 63 subjects (see Appendix for the claims and their importance ratings).

2.1.4. Delay. The second factor varied the delay between the initial evaluation formation and the presentation of the challenge. In the immediate-challenge condition, subjects

received the counterattitudinal information immediately after they expressed their initial evaluations of the target brand. In the delayed condition, the initial evaluation and the challenge were separated by approximately 40 min, during which time subjects were assigned unrelated filler tasks.

2.1.5. Challenge. In all conditions, the challenge consisted of a report that portrayed the target brand in a mildly negative light, but was not intended to be fatal. The report mentioned three problems with the brand, which a pretest had determined to be relatively minor (e.g., the package was difficult to open). In the control groups, subjects' brand evaluations were recollected after a delay without exposure to the challenge.

2.1.6. Dependent Variables. The pre- and post-challenge evaluations of the target pen were measured on three 9-point scales anchored by *like-dislike*, *negative-positive*, and *unfavorable-favorable* ($\alpha_{\text{Time 1}} = 0.92$ and $\alpha_{\text{Time 2}} = 0.95$). Confidence in evaluations was measured on a 9-point scale anchored by *not at all confident-extremely confident*. In order to examine the underlying processes, memory for the target-brand information presented prior to the initial evaluations was measured through free recall. Each recall item was coded as accurate or inaccurate by two judges blind to the objectives of the experiment and to the experimental manipulations (agreement = 86 %, disagreements resolved by one of the authors).

2.2. Results

2.2.1. Analysis Plan. In this experiment, as well as in the second experiment, the main dependent variables were (1) the amount of change between the initial and post-challenge evaluations [(prior evaluation) – (post-challenge evaluation)], that is, the *magnitude* of (downward) revision; and (2) the proportion of participants who revised their evaluations by at least one scale unit, that is the *probability* of revision.[2] In each experiment, we submitted the former to between-subjects ANOVAs and the latter to binary logit analysis.

2.2.2. Information and Persistence of Evaluation after a Delay. Subjects in the control groups were exposed to the same information manipulation (either isolated or embedded) as the experimental groups. However, after a delay, control subjects reported their brand evaluations without having been exposed to the challenge. The changes in evaluations (Time 1 Evaluation – Time 2 Evaluation) were submitted to a single-factor ANOVA, with information (isolated vs. embedded) as a between-subject factor. The analysis showed that both conditions yielded similar evaluative persistence ($M_{\text{Change}} = 0.34$ for isolated and $M_{\text{Change}} = 0.46$ for embedded, $F_{(1,20)} < 1$). Hence, the experimental differences in the judgment revisions after a challenge cannot be explained by unequal persistence of the initial evaluation across the information conditions.

[2]It was not practical to analyze the proportion of participants who made *any* amount of revision (i.e., [initial evaluation] – [post-challenge evaluation] $\neq 0$) because this proportion reached 100 % in some experimental cells.

2.2.3. Pre-challenge Evaluation and Confidence. The pre-challenge evaluations were submitted to a two- factor (information × delay) between-subjects ANOVA. The presentation (amount of information) had a significant main effect ($F_{1,140} = 11.85$, $p < 0.01$); initial evaluations were more favorable in the embedded condition ($M = 6.76$) than in the isolated condition ($M = 6.19$). Neither the effect of delay nor its interaction with presentation was significant. As expected, the amount of information also had a significant effect on confidence in the initial evaluation ($F_{1,140} = 23.2$, $p < 0.01$). Confidence was higher in the embedded condition ($M = 6.30$) than in the isolated condition ($M = 5.50$). No other effect was significant. This result indicates that the initial evaluation, as well as confidence in the initial evaluation, was greater in the embedded (high amount of information) condition. However, as we discuss below, the apparent "strength" of initial evaluations based on a high amount of information need not translate into greater resistance to challenges.

2.2.4. Magnitude of Revision after Challenge. The Table reports the pre- and post-challenge evaluations and confidence in the pre-challenge evaluation.[3] The magnitude of judgment revision [(initial evaluation) – (post-challenge evaluations)] was submitted to a 2 (information) × 2 (delay) ANOVA. Delay had a strong effect on the magnitude of revision ($F_{1,140} = 21.7$, $p < 0.01$). Revisions were stronger in the delayed challenge condition ($M = 2.19$) than in the immediate challenge condition ($M = 1.15$), as would be expected. More interestingly, this main effect was qualified by a significant delay-by-information interaction ($F_{1,140} = 13.8$, $p < 0.01$). Follow-up analyses show that when the challenge followed the initial evaluation immediately, the embedded (higher amount of) information resulted in smaller downward revision, that is, greater resistance ($M = 0.87$) than did the isolated (lesser amount of) information ($M = 1.43$; $F_{1,140} = 3.09$, $p < 0.1$). However, when the challenge was delayed, the embedded information resulted in *greater* downward revision, that is less resistance ($M = 2.74$) than the isolated information ($M = 1.64$; $F_{1,140} = 12.55$, $p < 0.01$). Interestingly, this pattern of results was obtained despite the fact that confidence in the initial evaluations was higher in the embedded condition. These results show that, under certain conditions, the previous finding that amount of information decreases judgment revision (increases attitudinal resistance) may be reversed.

2.2.5. Probability of Revision. Table 1 also presents the proportion of subjects who revised their evaluations by one point or more in each experimental condition. These proportions were submitted to a 2 (information) × 2 (delay) binary logit analysis. Consistent with the magnitude of revision results, the analysis revealed a marginally significant information-by-delay interaction (Wald-$\chi^2 = 2.87$, $p < 0.09$). Follow-up analyses show that, compared to embedded (higher amount of) information, isolated (lesser amount of) information significantly reduced the probability of revision under delayed challenge (Wald-$\chi^2 = 4.42$, $p < 0.04$), but not under immediate challenge (Wald-$\chi^2 = 0.06$, $p > 0.8$). The processes underlying the magnitude and probability of revision across conditions was examined by analyzing the recall data.

[3]There were no experimental effects on confidence in the post-challenge evaluations. Hence, this measure is not discussed.

Table 1. The Effects of Amount of Information and Delay on Judgment Revision

	Experiment 1				Experiment 2	
	Immediate Challenge		Delayed Challenge (40 min.)		Delayed Challenge (two days)	
	Isolated (3 claims)	Embedded (9 claims)	Isolated (3 claims)	Embedded (9 claims)	Isolated (3 claims)	Embedded (9 claims)
Initial evaluation	6.28	6.60	6.11	6.93	5.81	5.96
Post-challenge evaluation	4.85	5.73	4.47	4.19	4.56	3.93
Magnitude of judgement revision	1.43	0.87	1.64	2.75	1.25	2.04
Probability of revision (by one point or more)	51.4% (18/35)	40.0% (14/35)	75.7% (28/37)	94.6% (35/37)	68.75% (11/16)	92.9% (13/14)
Confidence in initial evaluation	5.49	6.23	5.51	6.38	4.69	5.71
Recall of 3 most important claims	2.63	2.46	1.70	0.92	0.94	0.43

2.2.6. Recall. The recall of the three most important claims was submitted to a delay-by-information ANOVA. The main effect of delay was very strong, recall being obviously higher in the immediate condition ($M = 2.54$) than in the delayed condition ($M = 1.31$; $F_{1,140} = 21.7$, $p < 0.001$). More important, there was a significant delay-by-information interaction ($F_{1,140} = 13.84$, $p < 0.01$; see Table 1 for the means). As expected, when the challenge was delayed, memory for the most important claims was higher in the isolated presentation than in the embedded presentation condition ($F_{1,140} = 13.51$, $p < 0.01$). However, when the challenge was immediate, memory for the most important claims was equally good across information conditions ($F < 1$). This finding is consistent with the hypothesis that if the isolated condition exhibited lesser judgment revisions under a delayed challenge, it is because the brand's most important features were more memorable than in the embedded condition.

2.2.7. Mediation Analyses. We performed mediation analyses (Baron and Kenny 1986) to document the process underlying judgment revisions in the delayed challenge condition. The analyses supported the mediating role of memory for the most important claims. When memory for the most important claims was included as a covariate in an ANCOVA of judgment revision in the delayed condition, the effect of this covariate was significant ($F_{1,71} = 30.61$, $p < 0.001$) and the effect of information on judgment revision became nonsignificant ($F < 1$, $MS_{Information}$ reduced by 90%). A similar categorical mediation analysis reveals that recall was also a significant predictor of the probability of revision (Wald-$\chi^2 = 9.31$, $p < 0.01$). Furthermore, inclusion of this covariate renders the effect of information on the probability of revision nonsignificant (Wald-$\chi^2 = 0.41$, $p > 0.5$).

We performed a similar analysis to test whether confidence in the initial evaluation mediated judgment revision in the immediate challenge condition. When confidence in the initial evaluation was entered as a covariate in an ANCOVA of judgment revision in the immediate condition, the covariate's effect was significant ($F_{1,67} = 7.54$, $p < 0.01$) and the effect of information became nonsignificant ($F < 1$; $MS_{Information}$ reduced by 67%). The analysis thus supports a mediational influence of confidence in the initial evaluation when the challenge was immediate.[4]

While our analyses were performed *within* delay conditions, it is also interesting to examine the effects of information *across* delay conditions. It can be noticed then that within the isolated learning condition, memory for the most important claims dropped significantly ($M_{Immediate} = 2.63$ vs. $M_{Delayed} = 1.70$, $F_{1,140} = 25.9$, $p < 0.001$), whereas the magnitude of revision did not change ($F < 1$). We offer that this is because memory for the target information was more critical in the delayed condition than in the immediate condition where subjects could rely as well on their highly accessible initial evaluations. If

[4]Similar analyses show that recall of the most important claims did not mediate judgment revision in the immediate challenge conditions, whereas confidence in the initial evaluation did not mediate judgment revision in the delayed challenge conditions. Further analyses show that, within the embedded conditions, recall for the less important claims did not influence the magnitude of judgment revision. Therefore, while the additional, less important information increased subjects' confidence in the initial evaluation, it did not influence the magnitude of subsequent revisions. As we suggest further in the text, the processes that underlie initial evaluations may be qualitatively different from those that underlie subsequent revisions.

this explanation is correct, the proportion of subjects who revised their evaluations should be less in the immediate-isolated condition (where subjects were inclined to invoke their initial evaluations) than in the delayed-isolated condition (where subjects were more likely to rely on their memory for the target information). Consistent with this explanation, the probability of revision was indeed smaller in the isolated-immediate-challenge condition (51.4 %) than in the isolated-delayed-challenge (75.6 %; Wald-$\chi^2 = 4.45$, $p < 0.04$).

2.3. Discussion

The results clearly show that information quantity does not necessarily increase attitudinal resistance (decrease subsequent judgment revision). If the target information, while generally positive, is not homogeneous in its compellingness, a greater amount of information may decrease attitudinal resistance to challenges that are delayed. This is because embedding the target's most compelling attributes among less compelling attributes decreases the probability that the former will be accessible at the time of the challenge. This finding is noteworthy, considering that the amount of information was found to increase confidence in the initial evaluation. This suggests that the "strength" of the initial evaluation (as indicated by greater judgmental confidence) may not always translate into greater resistance to subsequent attitudinal challenges.

On the other hand, increasing the amount of target information by adding less compelling attributes to the more compelling attributes may increase resistance to challenges that are immediate. Therefore, to assess the role of amount of information on attitudinal resistance, it is important to recognize that judgment revision may be based on different processes depending on the timing of the challenge. Revision provoked by challenges that are immediate may be based largely on a recruitment of highly accessible initial evaluations, whereas, revision provoked by challenges that are delayed may be based on a more constructive process in which the accessibility of the target information becomes critical.

3. Experiment 2

One limitation of Experiment 1 is that attention to the target information may have been unusually high. In the embedded condition, this high attention may have created a retroactive interference that exceeds the interference that would be expected in the real world. As a result, Experiment 1 may overestimate the degree to which embedded information decreases resistance to delayed challenges.[5] To address this possibility, Experiment 2 compares the attitudinal resistance produced by isolated versus embedded attribute information in a more ecologically-plausible setting where attention to the target information was more incidental. A secondary objective of the experiment was to

[5]We thank an anonymous reviewer for raising this interesting issue.

investigate whether delayed-challenge findings of Experiment 1 would generalize to longer delays between the initial evaluation and the challenge.

3.1. Method

Thirty subjects were randomly assigned to one of two experimental conditions: isolated target information or embedded target information. The challenge was delayed for all subjects. The procedure was modeled after Haugtvedt et al. (1994). The study was conducted in two sessions separated by two days. In the first session, participants were told that they would be evaluating a TV cartoon program. Because the cartoon project was still in its early stages, the pilot test would be conducted with a print version of the program's storyboard presented in a booklet. Participants were also told that in order to simulate the experience of watching TV, there would be ads scattered at intervals through the booklet. Each booklet consisted of a series of panels taken from a comic book among which three pods of advertisements were inserted. Each pod contained two advertisements, one for the target product (the pen) and one for a filler product (a supermarket). In the embedded (high-information) condition, each of the three executions of the target ad contained one of three most important claims, which was embedded between two less important claims (nine claims in total). In the isolated (low-information) condition, each execution of the target ad contained only one of the most important claims appearing by itself (three claims in total). After reading the booklet, participants completed a questionnaire assessing initial evaluations of the target brand ($\alpha = 0.71$) and the filler brand, and confidence in these initial evaluations.

When participants returned two days later, they read a *Consumer Reports*-type document (the challenge) that conveyed negative information about the target brand and neutral information about the filler brand. After reading this document, participants were administered another questionnaire that again measured their (post-challenge) evaluations of the target ($\alpha = 0.73$) and filler brands. Memory for the target-brand information presented during the first session was then assessed.

3.2. Results

3.2.1. Pre-challenge Evaluation and Confidence. The results are summarized in the last two columns of the Table. Unlike Experiment 1, the isolated and embedded information groups did not vary in terms of their initial evaluations of the target ($M_{Embedded} = 5.96$ and $M_{Isolated} = 5.81$, $F_{1,28} < 1$). However, the embedded information provided greater judgmental confidence ($M = 5.71$) than did the isolated information ($M = 4.69$; $F_{1,28} = 4.38$, $p < 0.05$), as in Experiment 1.

3.2.2. Magnitude and Probability of Revision. The magnitudes of revision (i.e. the amount of change between the initial and post-challenge evaluations) were submitted to a one-way ANOVA. As predicted, the isolated information, despite offering fewer claims and

producing less confidence in the initial evaluations, resulted in smaller downward revisions after the challenge ($M = 1.25$), that is, greater resistance, than did the embedded information ($M = 2.03$; $F_{1,28} = 6.71$, $p < 0.02$). A logit analysis of the revision probabilities suggests that subjects in the isolated condition were also less likely to revise their evaluations (69%) than were subjects in the embedded condition (93%). However, due to small sample size, the difference did not reach significance (Wald-$\chi^2 = 2.81$, $p < 0.13$).

3.2.3. Mediation of Recall. As in Experiment 1's delayed condition, recall of the most important claims was greater in the isolated condition ($M = 0.94$) than in the embedded condition ($M = 0.43$; $F_{1,28} = 4.38$, $p < 0.05$). When recall of the most important claims was included as a covariate in an ANCOVA of the judgment revisions, its effect as a covariate was significant ($F_{1,27} = 11.64$, $p < 0.01$), and the previously significant effect of information became nonsignificant ($F_{1,27} = 2.48$, $p > 0.12$, MS reduced by 73%). Therefore, as in Experiment 1, the effects of isolated versus embedded target information on subsequent judgment revision was largely mediated by differential memory for the target's most compelling information.

3.3. Discussion

The results replicate Experiment 1's findings about how isolated versus embedded target information influences attitudinal resistance to delayed challenges. The results show that, even under more "natural" conditions of incidental learning of the target information, evaluations based on an isolated set of target information can be more resistant to counterattitudinal challenges than evaluations based on a more extensive but embedded set of target information. This effect, which was observed with a longer delay of two days, was again largely mediated by recall of the target's most compelling information.

4. General Discussion

4.1. Summary and Interpretation of the Findings

The results of these two experiments indicate that the effects of isolated versus embedded presentation of the most important claims on judgment revision and attitudinal resistance depend on the timing of the challenge. If the challenge is immediate, embedding the most important claims among less important ones does increase resistance to counterattitudinal messages, as prior research would suggest. This is because (a) the higher amount of target information – even if, *on average*, it is not as compelling—fosters greater confidence in the initial evaluations, and (b) a close temporal proximity between the initial evaluation and the challenge promotes a strong reliance on the prior evaluation.

On the other hand, if the challenge occurs after a delay (40 min in Experiment 1 and two days in Experiment 2), embedding the most important claims among less important ones (i.e. increasing the amount of proattitudinal information) may *decrease* resistance to

challenges. This is because the embedded learning of the most compelling information decreases its subsequent accessibility during the constructive process of judgment revision. This finding is an important qualification of past theories, which assumed that the amount of proattitudinal information would generally increase attitudinal resistance.

One could argue that the lesser resistance to delayed challenges of evaluations based on embedded target information occurs because the dilution of the most compelling claims among less compelling ones results in "weaker" initial evaluations. This explanation can be ruled out for two reasons. First, using confidence in the initial evaluations as an index of "attitude strength," we found that the higher amount of (embedded) information produced consistently *greater*, not lesser, confidence in the initial evaluations. Second, this explanation would not account for the finding that embedded presentation *does* increase resistance when the challenge is immediate. These same two arguments also rule out the possibility that subjects exposed to the embedded information were more "ambivalent" in their initial evaluations. Note also that attitude ambivalence is usually observed when there is a mixture of positive and negative information; all the information was positive in our studies (see Appendix).

4.2. Theoretical Implications and Future Research

Overall, our results intimate a different view of the notion of attitudinal resistance. Rather than viewing it as an *ex ante* byproduct of initial evaluations that are inherently "weak" or "strong," attitudinal resistance may be best viewed as the *ex post* outcome of constructive processes of judgment revision (e.g., Erber, Hodges, and Wilson 1995; Pham and Muthukrishnan, 2001), especially when the challenge is delayed (cf. Experiment 1). In this amended view, *any* factor that can decrease the magnitude and probability of judgment revision *at the time of the challenge* would increase ex post resistance. This includes previously neglected factors that operate *after* the challenge has taken place. For instance, Muthukrishnan, Pham, and Mungale (1999) recently found that challenges that offer greater opportunity to compare the target with its competitors receive a disproportionate weight in judgment revision.

Attitudinal resistance could thus arise through two distinct sets of mechanisms: (a) the recruitment of (or anchoring on) a strongly held initial evaluation, and (b) the contingencies of constructive processes of judgment revision. As Experiment 1 has shown, the relative influence of these two sets of mechanisms depends on the temporal proximity of the challenge. An interesting avenue for further research would be to identify other factors that shape this relative influence.

Future research on resistance and judgment revision should also examine how the prior (proattitudinal) target information—including the prior evaluation—*interacts* with the information contained in the challenge. Pham and Muthukrishnan (2001) recently proposed a "search-and-alignment" model of this interaction. According to this model, exposure to information that challenges a previous target evaluation triggers a spontaneous disconfirmatory memory search for target information that can refute the challenge. Hence, any factor that increases the accessibility of the proattitudinal target information during

this search should theoretically decrease the magnitude of revision (increase ex post resistance). One such factor is, of course, the sheer amount of proattitudinal information that the person has learned, as previous research has shown. Another factor is the context in which the information has been learned (e.g., in isolation or embedded), as this research has shown. A third factor would be the intrinsic memorability of the proattitudinal information. The list should be relatively easy to expand.

According to the search-and-alignment model, once proattitudinal information has been retrieved, it will also be compared with information contained in the challenge in order to assess how much the latter "damages" the former. Pham and Muthukrishnan (2001) propose that mental "damage assessment" is based on a process of structural alignment whereby discrepancies between the proattitudinal information and the challenging information that are highly commensurable provoke strong inclinations toward judgment revision. This process of damage assessment is clearly worthy of further research, as it presumably characterizes many situations in which consumers update their attitudes, judgments, and beliefs.

Appendix
Selected Claims and Importance Ratings based on Pretest (N = 63)

Claims Used in the Embedded Condition (Importance Ratings on an 11-point scale)

1. The Benzine tip that facilitates smooth, no skip writing (9.38)*
2. A special feature that helps a comfortable grip (8.34)
3. Available in many colors (6.32)
4. Available in three sizes (5.93)
5. Under normal use, has a life of 7 years (6.15)
6. Light Weight (5.76)
7. The smear-proof, quick drying ink (8.49)
8. New ink polymer of Omega3 provides long lasting use (9.21)*
9. High capacity, long lasting refills (9.36)*

Authors' Note

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*Subset of claims used in the isolated condition.

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