When Timing Matters: The Influence of Temporal Distance on Consumers' Affective and Persuasive Responses

JOAN MEYERS-LEYV
DURAIRAJ MAHESWARAN*

Existing theorizing suggests that consumers should experience more intense affective reactions when a positive outcome is just missed (short temporal distance) than when its occurrence is relatively remote (long temporal distance). Two studies are reported that explore why and when these effects occur and whether they also occur for persuasion responses. The findings indicate that this effect is likely to occur and influence persuasion only when people's involvement with the message issue is low rather than high. This observation together with findings obtained on a thought-listing task provide evidence that variations in temporal distance seem to operate by altering people's motivation to scrutinize a situation and evoke thoughts about alternative outcomes that might have been.

Increasing interest has been devoted to the role that time plays in affecting consumers' judgments and behaviors (Hoch and Loewenstein 1991; Hornik and Schlinger 1981; Jacoby, Szybillo, and Berning 1976). However, little consumer research has explored how the timing of outcomes might affect consumers' reactions to outcomes (for an exception, see Lassar and Folkser [1990]). For example, intuitively it would seem that an individual might exhibit a more intense emotional response upon learning that a friend's auto transmission burned out the day after the warranty on the car expired as opposed to nine months later. Similarly, one might expect that a person's reactions would be more extreme upon learning that someone's home was destroyed by fire just three days after s/he forgot to renew a home insurance policy rather than six months later.

Indeed, advertisers seem to agree with this intuition that an emotional intensity advantage may be associated with shorter versus longer temporal distances between actuality and what might have been. For example, an ad for Sheraton Hotels describes how a considerate Sheraton manager helped a guest avert an unpalatable outcome by, in just the nick of time, lending him a pair of shoes. An ad soliciting organ donations for St. Jude Hospital tells of a stoic child who died because a liver became available for transplant one week too late.

Growing research in cognitive psychology offers insight into this issue by examining people's responses to variations in the temporal distance that separates an actual outcome from an alternative one that might be imagined (Kahneman and Miller 1986). While such research does not deny that expectancies derived prior to an event can affect people's reactions, it holds that, when events are unanticipated, people's responses to them are likely to be shaped instead by the comparison of the actual outcome with alternative ones that people conjure up post hoc in response to the event itself.

Specifically, people are thought to be more likely to imagine alternative outcomes that might have been had an alternative event taken place—a process referred to as counterfactual processing—when a short rather than a long temporal distance separates the actual and alternative outcomes. Further, because these people are likely to contrast their opposing vision of what might have been with what actually was, their responses to the situation tend to be amplified, as indicated by heightened regret (Kahneman and Tversky 1982), empathy (Miller, Turnbull, and McFarland 1990), and so on.

The current research builds on this work in several ways. First, we extend this literature by investigating temporal distance effects in a consumer-relevant context and exploring their influence on both the intensity of people's affect and the extent to which people are persuaded by an advocacy. Second, we seek support for the mechanism thought to underlie temporal distance effects by, for the first time, examining people's cognitive responses to temporal distance manipulations. We also investigate this purported mechanism by de-
riving and testing deductions that follow from a combination of current theorizing and Elaboration Likelihood Model notions (Petty, Cacioppo, and Schumann 1983), which together offer important insights into when temporal distance effects are and are not likely to occur.

**CONSUMERS’ RESPONSES TO VARIATIONS IN TEMPORAL DISTANCE**

Starting with the seminal work of Kahneman and Tversky (1982), growing research has examined people’s reactions to situations in which either short or long temporal distances separate actual and alternative outcomes (see Johnson 1986; Kahneman and Miller 1986; Miller and McFarland 1986; Miller, Tversky, and McFarland 1989). Kahneman and Miller’s (1986) norm theory has been employed to explain the finding that people generally exhibit more intense affect when a short rather than a long temporal distance separates reality and imagined, alternative outcomes.

According to this theory, unanticipated outcomes or events are judged in relation to norms or frames of reference, which are based on the post hoc counterfactual thoughts or images that the actual outcome brings to mind (e.g., Kahneman and Tversky 1982). Unexpected outcomes that occur within a short temporal distance of alternatives are thought to elicit highly available or strong alternative scenarios (Miller et al. 1989), which constitute the norm against which they are evaluated. These types of outcomes are referred to as abnormal because they strongly evoke alternatives. By contrast, less discrepant, more normal outcomes, such as those that occur within a long temporal distance of alternatives, evoke “traces of similar experiences” or thoughts that resemble or confirm that outcome (Kahneman and Miller 1986, p. 139). Thus, the more abnormal the outcome, the more intense one’s affective reaction to it should be because the greater is the discrepancy between the valence of the actual outcome and the alternatively valenced norm against which the outcome is compared.1

Accordingly, a person who learns that a someone’s home was devastated by a fire just three days after s/he forgot to renew his/her insurance policy (i.e., short temporal distance) may regard the situation as extremely ironic and unfortunate because counterfactuals that play out alternative outcomes are likely to be highly available (“If only Bob had responded to the first policy termination notice he received”). Indeed, the juxtaposition of the negative actual outcome with these readily elicited positive alternatives is likely to amplify negative affect.

The likelihood of eliciting such counterfactuals is more remote, however, if one learns that the fire occurred six months after the policy terminated (long temporal distance; Kahneman and Miller [1986]). Instead in this case, people are more likely to generate scenarios that largely replay or confirm the facts surrounding the actual outcome (e.g., “Unfortunately, such infrequent disasters are part of life”; Kahneman and Miller 1986; Miller et al. 1989). Rehearsal of these cognitions, which we shall refer to as confirming thoughts, may foster the conclusion that the rare negative outcome was inevitable.2 Because confirming thoughts give rise to a fairly negative norm against which the actual negative outcome is compared, the intensity of the resulting negative affect should be low or perhaps blunted, possibly because people perceive the outcome as inevitable (Gleicher et al. 1990).

While the literature provides ample evidence that, relative to long temporal distances, short temporal distances amplify people’s emotional reactions to situations, this evidence consistently relies on an implicit, untested assumption. It is assumed that such effects occur because abnormal, short temporal distance events elicit highly available alternative outcomes that are contrasted with the actual outcome. This research test this assumption in two ways. First, we analyzed people’s cognitive responses to assess the extent to which pre-dominantly counterfactual versus confirming thoughts were evoked under short versus long temporal distance conditions. We then further explored the basic assumption by testing some deductions that follow from it. These deductions are of particular interest because they suggest that temporal distance effects may not always occur. Rather, they may be moderated by people’s motivation to process the stimulus message in detail.

**Predicting the Moderating Effects of Involvement**

**Types of Cognitive Responses.** Kahneman and Miller (1986) suggest that people generate more counterfactual thoughts when short rather than long temporal distances separate real and alternative outcomes because only under short temporal distance conditions should alternative outcomes be highly available and thus produce a contrast with reality, eliciting intensified reactions. Drawing on this logic and notions suggested by the Elaboration Likelihood Model (Petty et al. 1983), we reasoned that people who are highly involved with a message should be sufficiently motivated to scrutinize and elaborate extensively on a message issue. Thus, highly involved consumers may be likely to generate counterfactual outcomes, regardless of the availability of these outcomes. In the case of short temporal distances, the enhanced availability of counterfactual outcomes naturally should facilitate their generation.

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1In explaining the intensity of people’s affective responses to variations in temporal distance, Kahneman and Miller’s theorizing implies that cognition precedes affect. However, this does not deny that, in alternative situations, affect may precede or occur independently of cognition.

2Because people tend to be optimists (Matlin and Stang 1978), they seem prone to view negative outcomes as rare.
However, even for long temporal distances (i.e., when counterfactual outcomes are remotely available or are dominated by more available confirming thoughts), highly involved consumers are still likely to generate these outcomes because of their increased motivation to do so. Individuals’ high involvement with the message may so heighten their motivation to consider how the actual outcome could have been otherwise that confirming thoughts may be suppressed as these individuals’ cognitive resources are consumed by counterfactual (confirming) thoughts.

On the other hand, individuals who are more modestly involved with a message should possess relatively limited motivation to engage in such extensive processing (Petty et al. 1983). Thus, the types of thoughts they generate should be sensitive to whether short temporal distance conditions render counterfactual alternatives highly available or whether long temporal distance conditions favor the generation of confirming thoughts. We hypothesized that only when a short temporal distance heightens the availability of alternative outcomes should low involvement consumers be motivated to generate a large number of counterfactuals and few confirming thoughts. Indeed, when the temporal distance is long and thereby hinders counterfactual thought, these individuals should produce few counterfactuals and a large number of confirming thoughts.3

It is noteworthy that the preceding logic has been suggested in passing by Kahneman and Miller (1986, p. 141) and expressed explicitly though not tested by Gleichert et al. (1990, p. 293). Gleichert et al. speculated that people may be more motivated to generate counterfactuals to a bad reality and ways to achieve that counterfactual reality if the situation has implications for themselves [high involvement] than if it concerns other hypothetical people [low involvement].”

Expressing the preceding predictions formally:

H1: When issue involvement is low, people should produce more counterfactual thoughts when a short rather than a long temporal distance separates actual and alternative outcomes. However, when issue involvement is high, the generation of counterfactual thoughts should be relatively high and invariant, regardless of variations in temporal distance.

H2: When issue involvement is low, people should produce more confirming thoughts when a long rather than a short temporal distance separates actual and alternative outcomes. However, when issue involvement is high, the generation of such confirming thoughts is likely to be relatively low and invariant, regardless of variations in temporal distance.

Intense of Affective Responses. A second important inference emerges by integrating the preceding predictions with the earlier discussed theorizing that links the generation of counterfactual and confirming thoughts with the intensity of consumers’ affective responses. Because the heightened (reduced) generation of counterfactual (confirming) thoughts is associated with increased affective intensity, it follows that variations in temporal distance should influence the intensity of consumers’ affective responses when issue involvement is low but not when it is high.

H3: When issue involvement is low, more intense or extreme affective responses should occur when a short rather than a long temporal distance separates actual and alternative outcomes. But when issue involvement is high, such variations in temporal distance should have little influence on people’s affective responses.

Persuasion. A final inference that can be derived from this analysis concerns the effect of variations in temporal distance on persuasion. The preceding analysis suggests that conditions that foster the generation of counterfactual thoughts are those in which people are not only motivated to mentally undo reality, but those that foster intense negative affect toward an actual (negative) reality. Based on these observations, we reasoned that people’s desire for an alternative reality is similarly likely to be intense under such conditions. Thus, we expected that these individuals’ intense striving to undo reality may result in their enhanced acceptance of an advocacy for a product or behavior that has the potential to undo the undesirable outcome or avoid it in the future.4 Indeed, Miller and McFarland (1986) have reported evidence that hints at some support for this prediction. To formalize the prediction:

H4: When issue involvement is low, greater persuasion should occur when a short rather than a long temporal distance separates actual and alternative outcomes. But when issue involvement is high, such variations in temporal distance should have little influence on persuasion.

The following study examines these predictions.

EXPERIMENT 1

Subjects

Eighty students enrolled in marketing classes took part in the study. Subjects participated in groups of 12–13 people.

3Though involvement presumably operates on a continuum ranging from low to high, for ease of exposition we shall refer to involvement dichotomously as either low or high.

4By contrast, under conditions that foster little counterfactual thinking and intensity of affect (i.e., a low-involvement/long temporal distance condition), it would seem that individuals are less likely to be persuaded by such an advocacy because they may accept the current outcome as being inevitable and/or because the low intensity of their affect may promote inertia or, at best, mild acceptance of the advocacy.
Procedure

All students were told that their assistance was sought in identifying charitable organizations that were worthy of support. Then booklets containing the experimental materials were randomly distributed. Materials included a manipulation of subjects' involvement with the message issue (high/low) and a persuasive fund-raising message for a charity in which the temporal distance between a depicted negative outcome and a positive alternative outcome was varied (short/long).

The first page of the booklet identified the purpose of the study and manipulated subjects' involvement with the message issue. Subjects in the high issue involvement condition were informed that they were part of a very select group of people whose assistance was being sought by their university in selecting charitable organizations that would receive contributions from the school. As such, their input was said to be extremely important and would play a vital role in selecting recipients of university donations. By contrast, subjects in the low issue involvement condition were informed that they were part of a large national sample of people that was being asked to assist a philanthropic foundation in developing a list of charitable organizations that were deserving of support. It was explained that their input might be considered in selecting organizations that would be included in the list.

All subjects then read a vignette illustrating the type of work the organization performed. It described the plight of two Chilean siblings and attempts by Save the Children to assist them and other victimized children. The message explained that, due to violations of human rights that had occurred in Chile since the current military junta took power, these children's parents had been apprehended by authorities. Thus, the children were struggling to survive on their own, living in abandoned buildings. In an effort to help such victims, Save the Children purportedly negotiated a resettlement plan with the Chilean government to place these and other such children with loving families in peaceful countries.

All subjects were informed that this resettlement plan that was to unite the siblings with a new family was foiled. However, the timing of events related to this outcome was varied. In the short temporal distance condition, events related to this negative outcome suggested that it occurred within one day of an alternative positive outcome. By contrast, in the long temporal distance condition, the same events occurred, but they suggested that the outcome occurred within nine months of the alternative outcome. The following portion of the message illustrates this temporal distance manipulation: "Felicia and her brother were selected as the first children scheduled to be united with a new American family. The children anxiously awaited their departure and being joined with their new American family. However, in response to several incidences of local unrest, just (one day/nine months) before the children's scheduled departure from Chile the Chilean government severed all outside intervention and cancelled their participation in the resettlement plan."

The final paragraph of the message urged support for Save the Children so that an assistance plan to help these and other homeless children like them could be secured.

Dependent Measures

After reading this message, subjects completed several dependent measures. One set of measures examined the intensity of affect subjects experienced in response to the vignette. Subjects indicated how distressed they felt about the two children's current situation, how upset the families were that the children were to live with, and how disappointed workers at Save the Children were about their unsuccessful attempt to help the children (1 = not at all, 7 = extremely). Factor analysis revealed that these measures loaded on a single factor and formed a reliable scale (α = .89). Thus, the measures were averaged to form an intensity of affective response index.

Because the message was intended to persuade subjects to assign funds to the charity, message persuasiveness was assessed by examining subjects' generosity toward the charity. Two measures assessed this issue in a general, nonpersonal manner by asking subjects what level of funds they felt the charity should receive (1 = little or no funding, 7 = a great deal of funding) and the percentage of available funding the organization should receive if it was chosen as a recipient of funds (rated from 0 to 100 percent in increments of 10 percent). In addition, two measures explored subjects' personal generosity by querying their willingness to donate personal money to the organization both in the near future and at any time in the future (both scales anchored by 1 = definitely would not donate funds and 7 = definitely would donate funds). The former two measures were highly correlated (r = .82) as were the latter ones (r = .85). Hence a separate nonpersonal generosity index and a personal generosity index were formed by averaging the item pairs.

After completing these measures, subjects were administered a cognitive response task in which they were asked to write down all thoughts that had occurred to them when they read the message. This was followed by a free recall task. Subjects were instructed not to refer back to any other materials in the booklet as they completed these tasks.

Finally, several manipulation check measures were administered. Subjects' involvement with the message was assessed by having them rate on seven-point scales both how interested and involved they were when they read of the organization's activities. As these items were

3As the two measures that assessed subjects' generosity in a nonpersonal way were obtained on seven- and 11-point scales, ratings on these measures were standardized so that they could be combined into a single nonpersonal generosity index.
highly correlated ($r = .77$), they were averaged to form an involvement index. To assess whether the temporal distance manipulation varied the degree to which subjects thought about alternative outcomes, subjects also rated how much they thought about how the outcome might have been different if the timing had been changed ($1 = $did not at all think about it, $7 = -$thought about it a great deal).

**Results**

The data were analyzed as a 2 (high or low issue involvement) $\times$ 2 (short or long temporal distance) factorial design. All effects reported in the results are significant at the .05 level or better, and treatment means for all measures appear in Table 1.

**Manipulation Checks.** The issue involvement manipulation was assessed in two ways. First, analysis of the involvement index revealed a main effect of issue involvement ($F(1,76) = 18.78$), which indicated that subjects were more involved with the message in the high ($\bar{X} = 4.99$) than in the low ($\bar{X} = 3.84$) involvement condition. In addition, the number of message statements that subjects identified in the recall task was employed as an involvement manipulation check because high involvement subjects have been found to exhibit recall superior to that of low involvement subjects (Petty et al. 1983). Consistent with such findings, a main effect of issue involvement emerged on recall ($F(1,76) = 10.05$), indicating that recall was higher among high ($\bar{X} = 4.45$) than among low ($\bar{X} = 3.67$) involvement subjects.

The temporal distance manipulation also was assessed in two ways. First an ANOVA was performed on subjects' ratings concerning the extent to which the temporal distance manipulation led them to think about how the outcome might have been different if the timing of events could have been changed. A main effect of temporal distance emerged ($F(1,76) = 9.13$), indicating that subjects in the short temporal distance condition ($\bar{X} = 4.50$) reported that they engaged in such thought more than did those in the long temporal distance condition ($\bar{X} = 4.50$). Second, because motivation to engage in extensive message scrutiny is posited to be greater under short than under long temporal distance conditions, the number of message statements subjects recalled was expected to provide another check on the temporal distance manipulation. As anticipated, a main effect of temporal distance emerged on recall ($F(1,76) = 8.86$), indicating that subjects recalled more statements when the outcome portrayed in the message was within a short (one day) rather than long (nine months) temporal distance from the alternative outcome ($\bar{X} = 4.43$ vs. 3.69, respectively).

These data suggest that the treatment manipulations were successful in varying the intended factors.

**Cognitive Responses.** Subjects' cognitive responses were coded by two judges who were blind to the treatments. Discrepancies in coding were resolved through discussion, and interjudge reliability was .93. Thoughts were coded into four categories: the overall number of thoughts generated, the number of counterfactual thoughts (e.g., "The Chilean government could have waited for a day"); "But for the government action, the children would have been free"); the number of confirming thoughts (e.g., "Save the Children made a real effort to aid these children"); and the number of extraneous thoughts that did not fall into either of the two preceding categories (e.g., "I have seen advertising on TV soliciting funds").

Analyses revealed no significant effects on either the overall number of thoughts generated ($p > .14$) or the number of extraneous thoughts ($p > .42$). Treatment effects were observed, however, on the remaining thought measures.

Main effects of both issue involvement ($F(1,76) = 10.13$) and temporal distance ($F(1,76) = 21.48$) emerged on the number of counterfactual thoughts that were generated. More such thoughts occurred when issue involvement was high ($\bar{X} = 3.30$) rather than low ($\bar{X} = 2.24$) and when a short ($\bar{X} = 3.54$) rather than a long ($\bar{X} = 2.00$) temporal distance separated actual and alternative outcomes.

Of greater interest, however, was a significant interaction of issue involvement and temporal distance ($F(1,76) = 5.06$). Consistent with Hypothesis 1, this interaction revealed that the number of counterfactual thoughts subjects generated varied as a function of the

\begin{table}[h]
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\hline
 & \textbf{High involvement} & \textbf{Low involvement} \\
 & \textbf{Short distance} & \textbf{Long distance} & \textbf{Short distance} & \textbf{Long distance} \\
\hline
Involvement index & 4.98 & 5.00 & 4.06 & 3.62 \\
Temporal distance check & 5.50 & 4.57 & 5.33 & 4.43 \\
Recall & 4.85 & 4.05 & 4.00 & 3.33 \\
Overall thoughts & 5.70 & 4.86 & 5.17 & 4.67 \\
Extraneous thoughts & .55 & .38 & .44 & .57 \\
Counterfactual thoughts & 3.70 & 2.91 & 3.39 & 3.10 \\
Confirming thoughts & 1.45 & 1.57 & 1.33 & 3.00 \\
Intensity of affect index & 3.88 & 4.10 & 4.89 & 3.16 \\
Nonpersonal generosity index & .00 & .10 & .82 & .61 \\
Personal generosity index & 3.95 & 4.00 & 4.72 & 3.21 \\
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\caption{Treatment Means for Dependent Measures}
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temporal distance manipulation when subjects' involvement with the message issue was low but not when it was high. Specifically, when issue involvement was low, subjects generated more counterfactual thoughts when the outcome portrayed in the vignette was within a short (one day) rather than a long (nine months) temporal distance from an alternative outcome ($F(1,76) = 24.83$). But when issue involvement was high, the number of counterfactual thoughts subjects reported was quite high and invariant, regardless of variations in temporal distance ($F < 1$).

Analysis of the number of confirming thoughts subjects reported revealed main effects of issue involvement ($F(1,76) = 6.26$) and temporal distance ($F(1,76) = 11.63$). Subjects produced more confirming thoughts when issue involvement was low rather than high ($X = 2.17$ vs. $1.51$, respectively) and when a long rather than a short temporal distance separated real and alternative outcomes ($X = 2.29$ vs. $1.39$, respectively). These main effects were qualified, however, by a significant interaction of issue involvement and temporal distance ($F(1,76) = 8.68$). Follow-up analyses revealed that, consistent with Hypothesis 2, when issue involvement was low, more confirming thoughts were reported when the outcome occurred within a long rather than a short temporal distance from the alternative outcome ($F(1,76) = 20.96$). But when issue involvement was high, the number of confirming thoughts was quite low and invariant, regardless of variations in temporal distance ($F < 1$).

Intensity of Affect. Next, analysis was performed on the index that assessed the intensity of subjects' affective responses. Higher index numbers indicate more intense and extreme negative affective responses.

An ANOVA on this measure revealed a main effect of temporal distance ($F(1,76) = 11.82$), which indicated that subjects' affective responses were more intense when the depicted outcome was within a short (one day; $X = 4.39$) rather than a long (nine months; $X = 3.63$) temporal distance from the alternative outcome.

Of greater interest, however, was an interaction of issue involvement and temporal distance ($F(1,76) = 10.35$). Further examination of the interaction revealed support for Hypothesis 3, which predicted that under low issue involvement the intensity of subjects' affective responses would increase as the temporal distance between the real and alternative outcomes decreased, but under high involvement the intensity of subjects' affect would be unaffected by such variations in temporal distance. Specifically, when issue involvement was low, subjects' affective responses were more intense when the actual outcome was within a short (one day) rather than a long (nine months) temporal distance from the alternative outcome ($F(1,76) = 29.89$), but when involvement was high, intensity of affect was fairly high and invariant, regardless of variations in temporal distance ($F < 1$).

Message Persuasion. Hypothesis 4 predicted that the effects of temporal distance and issue involvement observed on the intensity of subjects' affective responses would be mimicked on persuasion. Persuasion was assessed by examining two indicators of subjects' generosity in contributing to the charity. A nonpersonal generosity index assessed this behavior generally, while a personal generosity index measured subjects' willingness to donate personal funds to the charity. The ANOVAs on both measures revealed main effects of temporal distance, which indicated that subjects' general ($F(1,76) = 17.11$) and personal willingness to make a charitable contribution ($F(1,76) = 7.36$) were greater when the depicted outcome occurred within a short (one day) rather than a long (nine months) temporal distance from the alternative outcome ($X = 4.1$ and $-3.5$, respectively, for nonpersonal generosity; $X = 4.34$ and $3.61$, respectively, for personal generosity).

More important, these effects were accompanied by an interaction of issue involvement and temporal distance that emerged on both the nonpersonal generosity index ($F(1,76) = 13.10$) and the personal generosity index ($F(1,76) = 8.40$). Further examination of the interactions revealed that, consistent with Hypothesis 4, when issue involvement was low subjects exhibited greater nonpersonal generosity ($F(1,76) = 29.26$) and more personal generosity toward the charity ($F(1,76) = 15.38$) when the actual outcome was portrayed as being within a short (one day) rather than a long (nine months) temporal distance from an alternative outcome. But when issue involvement was high, both nonpersonal and personal generosity toward the charity were relatively high and unaffected by variations in temporal distance ($F < 1$).

Discussion

The findings of experiment 1 contribute to our understanding of why and when temporal distance effects occur and can influence the affective and persuasive impact of ad appeals. First, the data shed light on how variations in temporal distance effects operate by identifying the basic mechanism by which such variations affect people's responses. Consistent with speculation by Kahneman and Miller (1986), the findings suggest that variations in the temporal distance separating actual and alternative outcomes can alter people's motivation to scrutinize a situation and evoke thoughts about what might have been. Second, the findings offer insight into why temporal distance effects occur by providing for the first time cognitive responses data, which verify that short temporal distance events themselves tend to provoke highly available counterfactual or alternative outcomes that contrast with reality and thus intensify consumers' reactions. Long temporal distances, however, appear to produce predominantly confirming thoughts.

Third, the findings go beyond simply demonstrating a main effect finding of temporal distance. They elu-
cidate when temporal distance effects are and are not likely to be observed. Because short temporal distance events produce their effects by motivating detailed message scrutiny and counterfactual thinking, it appears that variations in temporal distance are likely to differentially affect consumers’ reactions only when consumers are not already prompted by other motivational factors such as high involvement to engage in this type of processing. Hence, separating an actual outcome from an alternative one by a short rather than a long temporal distance was observed to increase subjects counterfactual thinking and the intensity of their reactions only when subjects’ involvement and thus motivation to engage in counterfactual thinking was low rather than high.

Finally, the findings imply that persuasion may be intensified when consumers can be  sified by counterfactual thinking. Because individuals who engage in counterfactual thinking do so because they strive to undo reality, an advocated product that itself represents a way to undo reality is likely to appear highly persuasive.

Though these data provide important insights, the relevance of the findings for consumer behavior might be heightened if the data could be replicated in a more typical consumer context and using a tempered, perhaps more realistic temporal distance manipulation. Experiment 2 addressed these issues.

**EXPERIMENT 2**

**Procedure**

Sixty-three subjects took part in the study for extra course credit, participating in small groups. Subjects were told that the study sought information about how consumers view insurance. As in experiment 1, two factors were varied: message involvement (high or low) and temporal distance (short or long).

Subjects’ involvement with the message issue was manipulated in a manner similar to that employed in experiment 1. In the high (low) involvement condition, subjects were told that they were part of a very small (large) sample of students whose views about insurance were being sought. Subjects also were informed that their input would play a vital role (might be considered) in the decisions made by the sponsoring company.

Subjects then read a testimonial ad for rental insurance that contained the temporal distance manipulation. The ad contained a message that appeared in quotes and ostensibly was written by a local college student named Greg Sawyer. In the message, Greg explained that, because he lived in an apartment, he never thought that property insurance was necessary. However, after speaking with a friend who sold insurance, he realized the importance of such insurance. Thus, he had his friend write up a policy that he could examine, sign, and send in later that day. Due to Greg’s busy schedule, however, he forgot to send in the policy. This turned out to be a big mistake because either three days (short temporal distance) or six months (long temporal distance) later, a fire purportedly ravaged Greg’s apartment. Greg lost everything and had no coverage. Greg went on to explain that now he makes time for important things such as insurance, has taken out coverage, and feels others should buy rental insurance because one never knows when it will be needed.

**Dependent Measures**

Subjects completed two sets of measures. One set examined the intensity of subjects’ affective response to the ad. Subjects rated the extent to which they felt bad for the person in the ad and how distressing that person’s situation was (1 = not at all, 7 = extremely). These items were averaged, forming a reliable intensity of affective response index ($\alpha = .73$). The second set of measures assessed the persuasiveness of the message. On seven-point scales, subjects indicated their interest in talking to someone about obtaining insurance, how likely they were to consider insuring their belongings, and how likely it was that the ad would persuade people to buy insurance (1 = not at all, 7 = extremely). These scales were averaged and formed a reliable message persuasion index ($\alpha = .83$).

Finally, subjects completed the same cognitive response and recall tasks that were administered in experiment 1, except that the first task was completed either before or after the preceding measures. Then subjects completed the same manipulation check measures used in the previous study.

**Results**

Because initial analysis revealed that varying the sequence in which the cognitive response task was administered produced no effect on subjects’ responses ($p > .14$), this factor was dropped from the analyses. Thus, the data were analyzed as a 2 (high/low issue involvement) × 2 (short/long temporal distance) factorial design. Unless noted, all effects reported in the results are significant at the .05 level or better, and treatment means for all measures are provided in Table 2.

**Manipulation Checks.** Issue involvement was assessed using the same two measures as were employed in experiment 1. Analysis of the involvement index revealed a main effect of issue involvement ($F(1,59) = 7.70$), indicating that subjects were more involved with the message in the high ($\bar{X} = 4.65$) than in the low ($\bar{X} = 3.71$) involvement condition. In addition, the number of message statements subjects listed in the recall task revealed that, as expected, recall was higher among high ($\bar{X} = 6.72$) rather than low involvement subjects ($\bar{X} = 5.67$; $F(1,59) = 5.16$).

The temporal distance manipulation also was assessed in the same manner as before. First, ANOVA was performed on subjects’ ratings about the extent to which the temporal distance manipulation led them to
TABLE 2
TREATMENT MEANS FOR DEPENDENT MEASURES

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Think about how the outcome might have been different if the timing of events could have been changed. A main effect of temporal distance (F(1,59) = 4.78) emerged, indicating that subjects in the short temporal distance condition reported engaging in such thought more than did those in the long temporal distance condition (\(\bar{X} = 4.98\) and 3.80, respectively). Second, subjects’ recall was examined to assess whether it was higher under short rather than long temporal distance conditions, suggesting more extensive message scrutiny. Consistent with expectations, a main effect of temporal distance emerged on recall (F(1,59) = 5.01), indicating that recall was higher in the short (three days) rather than the long (six months) temporal distance condition (\(\bar{X} = 6.79\) vs. 5.60, respectively). These data suggest that both manipulations were successful in varying the intended constructs.

Cognitive Responses. Subjects’ cognitive responses were coded by two judges who were blind to the treatments. Interjudge reliability was .89, and the few coding discrepancies that emerged were resolved through discussion. Thoughts were coded into five categories: the overall number of thoughts generated, the number of counterfactual thoughts (e.g., “He should have thought about insurance earlier”); “Why didn’t he send the insurance in? since he decided to?”), the number of confirming thoughts generated (e.g., “Most people don’t have renter’s insurance”); “Everybody thinks that nothing will ever happen to them”), the number of thoughts generated concerning the value or the purchase of insurance (“Where can I buy insurance?”), and the number of extraneous thoughts (e.g., “When I first saw insurance, I immediately thought of car insurance”).

No significant effects emerged on the overall number of thoughts generated (\(p > .14\); see n. 6 above), thoughts concerning the value or the purchase of insurance (\(p > .14\)), or extraneous thoughts (\(p > .13\)). However, treatment effects were observed on the number of counterfactual thoughts generated. This measure yielded main effects of both issue involvement (F(1,59) = 9.38) and temporal distance (F(1,59) = 5.10), indicating that more counterfactual thoughts were generated both when issue involvement was high rather than low (\(\bar{X} = 2.15\) vs. 1.17, respectively) and when a short rather than a long temporal distance separated actual and alternative outcomes (\(\bar{X} = 2.03\) vs. 1.30, respectively).

It is important that these effects were qualified by an interaction of issue involvement and temporal distance (F(1,59) = 4.51). Consistent with Hypothesis 1, when issue involvement was low, subjects generated more counterfactual thoughts when a short (three days) rather than a long (six months) temporal distance separated the actual and alternative outcomes (F(1,59) = 9.04). But when issue involvement was high, the number of counterfactual thoughts subjects reported was quite high and invariant, regardless of variations in temporal distance (\(F < 1\)).

In addition, analysis of the number of confirming thoughts subjects generated revealed main effects of issue involvement (F(1,59) = 4.84) and temporal distance (F(1,59) = 3.38, \(p < .07\)), indicating that more such thoughts obtained when issue involvement was low rather than high (\(\bar{X} = 2.01\) vs. 1.41, respectively) and when a long rather than a short temporal distance separated the actual and alternative outcomes (\(\bar{X} = 1.97\) vs. 1.46, respectively). These main effects were suppressed, however, by a marginally significant interaction of issue involvement and temporal distance (F(1,59) = 3.54, \(p < .07\)) that followed the pattern outlined in Hypothesis 2. When issue involvement was low, more confirming thoughts were reported when the actual and alternative outcomes were separated by a long rather than a short temporal distance (F(1,59) = 6.57). But when issue involvement was high, the number of confirming thoughts generated was quite low and invariant, regardless of variations in temporal distance (\(F < 1\)).

Intensity of Affect. The index of subjects’ affective intensity was analyzed next, with higher numbers indicating more intense or extreme negative affective responses. This measure revealed a main effect of temporal distance (F(1,59) = 7.28), such that subjects’ affective responses were more intense when the actual and alternative outcomes were separated by a short (three days; \(\bar{X} = 5.54\)) rather than a long (six months; \(\bar{X} = 4.68\)) temporal distance. This effect was qualified, however, by an interaction of issue involvement and temporal distance (F(1,59) = 5.38). Further examination of the interaction revealed support for Hypothesis 3. When issue involvement was low, subjects’ affective responses were more intense when a short (three days) rather than a long (six months) temporal distance separated the actual and alternative outcomes (F(1,59) = 12.22), but when involvement was high, intensity of affect was fairly high and invariant, regardless of variations in temporal distance (\(F < 1\)).
**Message Persuasion.** Finally, the message persuasion index was analyzed to examine Hypothesis 4, which predicted that the effects of temporal distance and issue involvement observed on subjects’ affective intensity also would be observed on persuasion. An ANOVA on this index revealed a main effect of temporal distance ($F(1,59) = 6.80$), indicating that the message was more persuasive when a short rather than a long temporal distance separated the actual outcome from alternatives ($\bar{X} = 5.14$ and $4.34$, respectively). This effect was superseded, however, by an interaction of issue involvement and temporal distance ($F(1,59) = 5.27$). Consistent with Hypothesis 4, when issue involvement was low, subjects were more persuaded to buy insurance when the actual and alternative outcomes were separated by a short (three days) rather than a long (six months) temporal distance ($F(1,59) = 11.86$). But when issue involvement was high, message persuasion was fairly high and unaffected by variations in temporal distance ($F < 1$).

**GENERAL DISCUSSION**

The findings of both experiments converge in suggesting not only why but when temporal distance effects occur. They also clarify the mechanism by which variations in temporal distance can influence the affective and persuasive impact of ad appeals. In both studies, the data indicate that variations in temporal distance may differentially affect consumers’ responses only when consumers are not already motivated by other factors, such as high involvement, to engage in expansive processing. This implies that, like involvement manipulations, temporal distance manipulations may operate by varying consumers’ motivation to process and scrutinize a message elaborately.

When confronted with a temporal disparity (short or long) between what was and what might have been, it appears that a highly involved and thus motivated individual is likely to thoughtfully ponder the contingencies on which the actual outcome rests and work through how the current outcome might have been otherwise. Similarly, in the case of short temporal distance manipulations, individuals also appear to be motivated to engage in such counterfactual thought, though this occurs regardless of their level of issue involvement. In this instance, this process apparently ensues because short temporal distances themselves prompt or render highly available such alternatives to reality, which foster counterfactual thought. Regardless of whether issue involvement or short temporal distance spawns such counterfactual thoughts, these thoughts are likely to serve as a norm or frame of reference against which actual outcomes can be compared. Apparently, it is the resulting contrast between this frame of reference and reality that amplifies consumers’ reactions.

The treatment effects obtained were relatively strong and consistent, though in both reported experiments the message protagonist engaged in inaction rather than action (e.g., the student failed to buy insurance). This observation is noteworthy and suggests that the demonstration may be all the more impressive because previous research suggests that, unlike action, failure to act typically engenders a reduced emotional response (Gleicher et al. 1990). Still, future research should examine the outcomes that ensue when messages convey temporal distance scenarios concerning actions.

It is unlikely that the findings of these studies simply are attributable to demand effects caused by the extremity of the temporal distance manipulations. If demand were operating, it would be expected to produce temporal distance effects under low and high involvement conditions alike. Likewise, the consistent implications suggested by the various measures cannot be easily dismissed as resulting from a halo effect. The observation that in experiment 2 the same results obtained regardless of variation in the sequence of administering the measures argues against this possibility. In addition, it is unclear how a halo effect could account for the observation that the conditions that fostered high levels of counterfactual thoughts simultaneously produced low rather than high levels of confirming thoughts.

Less readily dismissed, however, is the possibility that a ceiling effect occurred under high involvement, perhaps obscuring a temporal distance effect. While such a ceiling effect cannot be ruled out entirely, two observations cast doubt on this possibility. First is the observation that neither subjects’ affective intensity ratings nor their persuasion/generosity ratings were near the endpoints of the scales. Second, the finding that, under high involvement, the short rather than long temporal distance manipulation did not produce even a consistent tendency of higher ratings (nor vice versa) implies that it is unlikely that a ceiling effect is obscuring true treatment effects in this condition.

At the same time, it seems possible that temporal distance effects might occur under high and low involvement conditions alike if an extremely long temporal distance were employed (e.g., if in experiment 2 the fire occurred two years after the victim failed to renew his/her insurance policy) because, in this case, the temporal disparity or incongruity might be so minimal that even highly involved individuals would lack the motivation to consider alternatives. Thus, it may be that highly involved individuals who consider long temporal distance situations will be motivated to generate counterfactuals at the expense of confirming thoughts only if the long temporal distance is not so extreme that it severely undermines access to alternative scenarios. This possibility should be explored in the future.

The current findings suggest an important implication for consumer research. It appears that temporal distance manipulations might be added to the list of devices that can effectively influence consumers’ motivation to engage in extensive message claim scrutiny. That is, separating actual and alternative outcomes by a short rather than a long temporal distance seems to
enhance message scrutiny in much the same manner as does heightening the personal relevance of messages (Petty et al., 1983) or incongruent (schema) features in ads (Houston, Childers, and Heckler 1987; Meyers-Levy and Tybout 1989).

Despite the progress made by the current research, several issues are in need of further inquiry. Future work should explore the robustness of the current effects. For example, it is unclear to what extent variations in temporal distance prompt counterfactual thinking when positive outcomes occur but nearly do not. Research reported by Johnson (1986) and Miller et al. (1990) suggests that the current theorizing may be invariant to actual outcome favorability. For example, Miller et al. found that subjects felt that a person who purchased a winning lottery ticket an hour and a half before the draw (short temporal distance) would be happier than one who purchased a winning ticket eight weeks prior to the draw (long temporal distance). However, Gleicher et al. (1990) found evidence of temporal distance effects in positive outcome conditions only when a counterfactual alternative was made highly salient to subjects.

Other factors that may qualify the current findings also merit study. It may be that temporal distance effects are confined to situations in which ample time is available for processing ads, as the expansive processing prompted by short temporal dig (schematic) situations should require a fair amount of processing time. Thus, temporal distance effects on persuasion may be observed either exclusively or more strongly when relevant ad material is presented in print rather than television ads.

Finally, it is unclear when and why temporal distance effects will influence persuasion only indirectly via their impact on affective responses and when or why such manipulations will exert a direct influence on persuasion. A path analysis conducted on the data from experiment 2 revealed that, under high involvement, temporal distance affected persuasion only indirectly ($\beta = .71, t = 3.75, p < .001$), not directly ($t < 1$). However, under low involvement, both a direct ($\beta = 1.50, t = 3.72, p < .001$) and indirect ($\beta = .51, t = 4.60, p < .001$) effect were observed. A similar analysis of the data from experiment 1 yielded the same inferences, though under low involvement the indirect effect only approached significance ($p < .16$). Future research is needed to explore both the reliability of and reason for these outcomes.

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