

(考試時間 3 小時)

(請注意本題位於第 5 頁)

1. Please read the following article and answer the three questions below:

- (1) What are the hypotheses that the authors would develop for this study? (10%)
- (2) If you were asked to design the procedure of Experiment 1, how will you do? (20%)
- (3) If you were asked to design the procedure of Experiment 3, how will you do? (20%)

Consumers often encounter sequential information that differs not only in content and form but also in temporal relatedness. For example, when browsing through a magazine, they might first encounter articles that are easy or difficult to read either because of content differences or because of other stylistic elements, such as the type of fonts used, the layout, figure-ground contrast, and so forth. These articles might be followed by ads for products that are either related to the article or not. How does the subjective experience of reading an article that is either easy or difficult to read influence readers' reactions to such product ads that are encountered subsequently?

Previous research has examined the effect of processing fluency (or ease of processing) on evaluations of the object described in the information being processed (for a review, see Winkielman et al. 2003). This research suggests that consumers often evaluate objects on the basis of the sub-

jective feelings of ease or difficulty that they experience at the time they read information about them (Schwarz 2004). For example, consumers are better able to process product information if its print font is easy to read (Novemsky et al. 2007), if it is presented in colors that are easy to read relative to the background (Reber and Schwarz 1999), or if they have been exposed to the same or related information previously (Labroo and Lee 2006; Lee and Labroo 2004). In all of these conditions, consumers evaluate the product more favorably than they might otherwise, suggesting that processing fluency has a positive effect on consumers' product evaluations.

Sometimes, however, the fluency experienced in processing information about one object might also influence evaluations of a different object that is viewed subsequently. Thus, in the example quoted earlier, the ease with which a magazine article is processed might influence the ease with which a subsequent ad is processed, leading to changes in the evaluations of the product described in it. The direction of this influence on evaluations is hard to predict. Some streams of research suggest that as processing difficulty associated with the first product increases, evaluations of the second product will become more unfavorable (an assimilation effect). For example, work by Winkielman and Cacioppo (2001; see also Schwarz 2004 and Winkielman et al. 2003) suggests that positive (negative) affect is elicited if there is high (low) processing fluency. If this is the case, then several theories about the role of affect in judgment would predict that the affect elicited by the first task might transfer to the second task, leading to assimilation effects (Fiske 1982; Gorn 1982; Schwarz and Clore 1983; Sujan 1985).

Other streams of research suggest that as the processing

difficulty of the first product increases, evaluations of the second product will become more favorable (a contrast effect). Such contrast effects could operate through a variety of mechanisms in which some criterion from the first experience is used as a standard of comparison in judging the second experience. The criterion that is used could vary. For example, work by Helson (1964) suggests a perceptual contrast whereby people adapt to the level of past stimuli and judge new stimuli in relation to an adaptation level. Thus, the experience of reading a difficult article could lead people to adapt to that low level of processing fluency. An ad that is encountered subsequently could be contrasted with this adaptation level. Other work (Adaval and Monroe 2002; Ostrom and Upshaw 1968) suggests that reading information about the first stimulus might create a perspective of how difficult or easy the material is to read and subsequent information might be evaluated in relation to this perspective. That is, the first task's difficulty might be used as a standard of comparison to judge the difficulty of the second task and, therefore, the second product. Or, as suggested by Lingle and Ostrom (1979), people might use their previously formed judgments (i.e., their fluency-based evaluation of the first product as good or bad) as a basis for later evaluations.

The present research distinguishes between the opposing effects implied by these different theoretical frameworks and determines when each is likely to predominate. In doing so, it makes two main contributions. First, previous studies have not examined the possibility that processing fluency experienced in one situation can influence the evaluation of objects that people view subsequently. The research reported in this article provides the first demonstration of this phenomenon. Second, it circumscribes the conditions under which processing fluency can lead to assimilation and contrast effects on subsequently evaluated objects and identifies the processes that might underlie these effects.

THEORETICAL BACKGROUND

Processing fluency is defined as the subjective feelings of ease or difficulty that individuals experience while processing information about an object (Novemsky et al. 2007). Previous research suggests that if consumers read product information fluently, the subjective ease of processing information might elicit a positive affective response toward the product (Winkielman and Cacioppo 2001; for a review, see Winkielman et al. 2003). Consequently, consumers' product evaluations might be influenced by subjective feelings of ease or difficulty that have little to do with the attributes of the product (for a review, see Schwarz 2004). For example, suppose consumers read attribute information about a DVD player. Feelings of ease are likely to be elicited if the information is presented in a font that is easy to read. Consumers might misattribute these positive feelings (caused by the experience of reading) to the DVD player and evaluate it more favorably. Correspondingly, low processing fluency caused by a difficult-to-read font can lead to poorer evaluations of the object.

Numerous studies have shown that variables that can af-

fect the speed or accuracy of identifying a stimulus, such as previous exposure (Zajonc 1968, 1980), figure-background contrast (Reber and Schwarz 1999), or print fonts (Novemsky et al. 2007), can influence processing fluency and lead to more favorable evaluations of the stimulus when this fluency increases (Labroo and Lee 2006; Lee and Labroo 2004; Winkielman et al. 2003). For example, Zajonc (1968) found that repeated exposures of an object increased people's liking of that object. Reber and his colleagues (Reber and Schwarz 1999; Reber, Winkielman, and Schwarz 1998) showed that participants liked a stimulus more when it was presented for a longer duration or printed in an easy-to-read color and therefore was easy to identify. In a consumer-related context, Lee and Labroo (2004) showed that, when a target came to mind more readily (either because it was presented in a predictive context or because it was primed by a related construct), participants developed more favorable attitudes toward it.

In all of the studies on processing fluency, participants were always asked to evaluate the object that elicits fluency. However, it is unclear if processing fluency experienced in one situation can have an influence on judgments of products that are viewed subsequently. More specifically, the processing fluency elicited by reading about one product could influence judgments of a second product either in the same direction as that of the first one (an assimilation effect) or in the opposite direction (a contrast effect). In principle, both of these effects could occur for reasons to be discussed.

Assimilation Effects of Processing Fluency

Several streams of research suggest that negative (positive) subjective experiences in one situation can lead to negative (positive) evaluations in a later situation (an assimilation effect). According to the affect-as-information theory (Schwarz and Clore 1983), negative feelings can be misattributed to other objects being judged. For example, Schwarz and Clore (1983) found that participants misattributed their mood, as a result of the weather, to life satisfaction. Consequently, they reported higher life satisfaction on good weather days than on bad weather days. Other affect transfer theories predict the same effect but postulate a different mechanism. For example, they predict that feelings can influence evaluations of an object via a conditioning mechanism where close proximity or overlap between a target and a stimulus that elicits feelings can lead to a transfer of evaluative feelings to the target (Gorn 1982).

Other work on priming also shows similar transfer of valence. For example, Murphy and Zajonc (1993) found that novel Chinese ideographs were evaluated more negatively if they were preceded by negative affective primes than positive affective primes. Similarly, work on the automatic evaluation effect (Bargh et al. 1992; Fazio et al. 1986) suggests that priming people with valenced object words (e.g., candy) facilitates their response to target words that are of similar valence (e.g., beautiful).

In general, the feelings elicited by reading information about one stimulus might be more likely to transfer to an-

other stimulus that is encountered subsequently if the two experiences are seen as related and are categorized together. Previous work by Lee and Labroo (2004) found that participants who were exposed to a bad product (lice-killing shampoo) in a previous situation evaluated a subsequent target product more negatively if it was related to the bad product they had seen than if it was not. Sujan (1985; see also Fiske 1982) similarly suggests that the attitude toward a product can be positively influenced if the superordinate category to which it belongs elicits positive affect. The conceptualization we propose and discuss presently incorporates elements of both and is based on how consumers think about the two experiences.

Contrast Effects of Processing Fluency

Other theories suggest a somewhat different possibility wherein negative (positive) subjective experiences elicited by processing information in one situation lead to positive (negative) evaluations in a later situation. For example, according to adaptation level theory (Helson 1964), new objects or experiences are judged in relation to an adaptation level that is formed from recent experiences. For example, water feels warmer after one has put one's hand in cold water than after one has put it in hot water (a perceptual contrast). In the present context, it is conceivable that people might adapt to a particular level of perceptual fluency. Thus, if the information is presented in a difficult-to-read font, people might adapt to this level of difficulty. Later, when they encounter an ad with product information in a font that is not difficult, they might find the subjective experience of reading it easier and more pleasant than usual, and this could lead to increased liking for the product described in the subsequent information.

Work by Adaval and Monroe (2002; see also Lynch, Chakravarti, and Mitra 1991; Ostrom and Upshaw 1968; Parducci 1965) suggests directionally similar judgmental contrast effects. According to this work, contrast effects typically occur because the initial context provides a perspective from which later objects are judged along a particular dimension. In the present context, when people read an article or ad that is difficult (easy), it creates a perspective of reading difficulty that is then used as a standard for judging the processing difficulty of subsequently encountered information. That is, any new information that is encountered is judged relative to this perspective and might seem easier (more difficult). According to this conceptualization, the standard of comparison typically comes to mind consciously and might be applied consciously.

A third, more obvious possibility is that contrast effects could be based on previously formed evaluations. According to research by Reber et al. (1998; see also Reber and Schwarz 1999), if people encounter information that is difficult to read, they form an unfavorable evaluation of the product described. This unfavorable evaluation of the first product could then be used as a standard of comparison to judge the target product (see Lingle and Ostrom 1979 for similar effects in the social judgment domain). Thus, in this

case, a negative evaluation of the first product drives the contrast effect independently of any changes in the perception of fluency. The conceptualization we propose not only identifies when a contrast effect is more likely to occur but also which of these alternative processes underlie it.

The Present Conceptualization: When Do Assimilation and Contrast Occur?

According to previous research in cognitive and social psychology, most experiences that people have are represented in memory as mental models (Johnson-Laird 1980, 1983; Wyer and Radvansky 1999; Zwaan and Radvansky 1998). When individuals encounter a series of experiences that are temporally and thematically related, they are likely to form a single model of the sequence of events as a whole and store it in memory as a single representational unit. When the events are unrelated, however, separate representations are formed (Wyer, Adaval, and Colcombe 2002; see Adaval, Isbell, and Wyer [2006] and Radvansky et al. [1997] for empirical evidence). According to this stream of research, if consumers read a magazine article and then encounter an ad that is thematically related to it, they will represent the two experiences in memory as a single representational unit if they see them as temporally and thematically related. On the other hand, if they see the ad as unrelated to the magazine article, the two experiences may be stored as two separate representations.

The nature of the representations formed has interesting implications for the issues of concern in this article. If two related experiences are represented in memory as a single unit, the feelings elicited by the two experiences are unlikely to be distinguishable from each other. Thus, for example, if the material in a magazine article is easy or difficult to read, the feelings that consumers experience in the course of comprehending the information are unlikely to be distinct from those that are elicited by a related ad that follows it. As a result, the feelings elicited by the first experience are likely to have a positive (assimilation) effect on evaluations of the ad and the product it describes.

However, suppose that the ad that follows is not thematically related to the article. The two experiences are then likely to be represented in memory independently of one another. In this case, consumers who have experienced feelings of ease or difficulty in comprehending the magazine article are likely to be sensitive to the change in feelings they experience when comprehending the ad that follows it and might interpret the latter feelings in relation to those they experienced earlier, while reading about the ostensibly unrelated and independent event. Consequently, as the difficulty of processing the magazine article increases, the processing of the ad that follows it will seem easier, leading to more favorable reactions to the ad and the product it describes (contrast effect). By the same token, if the processing of the magazine article becomes easier, then the high fluency experienced will make a subsequently encountered ad seem more difficult to read and will lead to more unfavorable

evaluations of it. The process underlying these effects should be distinguished from the one that suggests that the evaluation of the magazine article (as good or bad) is used as a basis for evaluating the subsequent product ad.

We also assume that this contrast effect occurs when people are unaware of the source of these feelings (Schwarz and Clore 1983). That is, consumers might be aware that the feelings they are experiencing are pleasant or unpleasant but they might not be conscious of the source of these feelings (i.e., where they come from). Thus, any factor that draws attention to the source of the feelings of fluency should eliminate such contrast effects. This distinguishes our conceptualization from other ones (Adaval and Monroe 2002; Lynch et al. 1991) that imply that participants might be aware of the ease or difficulty of reading the font of the magazine article and might consciously evaluate the font of the following ad relative to this prior experience.

We tested this conceptualization in five experiments that examined which type of effect (assimilation or contrast) is likely to predominate, the conditions in which it is expected to occur, and the cognitive mechanisms underlying it. Experiments 1 and 2 provided evidence that an assimilation effect is more likely to occur if the two experiences are seen as related, whereas a contrast effect is more likely when consumers perceive them as being unrelated. Experiment 3 provided further support for the assumption that the contrast effect is mediated by experienced changes in feelings of fluency. Experiments 3-4 also showed that participants discount the information value of processing fluency in evaluating the stimulus if they realize that this fluency is due to the font in which the information is presented or if they misattribute this fluency to other sources (e.g., room lighting). In these conditions, the contrast effect disappears. Experiment 5 suggested that the contrast effect also occurs when processing fluency increases and the subsequently encountered product information is difficult to read.

2. Please read the following article and answer the two questions below:

(1) The authors conducted two experiments to test their hypothesis. If you were asked to design Experiment 2 for the authors, how will you do it and why? (20%)

(2) What research questions can you think of as extensions of this research? Please specify your research questions and/or hypotheses, and then design an experiment to test your hypotheses (30%).

A burgeoning number of studies on construal level theory (CLT) have recently examined how consumers make evaluations or choices about events with different temporal perspectives (e.g., Chandran and Menon 2004). According to CLT, different temporal perspectives (i.e., whether events take place in the near or distant future) influence consumers' evaluations of events by systematically altering representations of the events (Liberman and Trope 1998; Trope and Liberman 2003). More recently, the application of CLT has been extended to a broader, multifaceted construct called psychological distance, which includes different dimensions such as temporal distance (when; near future vs. distant future), social distance (who; self vs. other; in-group vs. out-group), spatial distance (where; here vs. there; local vs. 3,000 miles away), and the degree of outcome

certainty (whether; certain vs. uncertain). There is accumulating evidence that the same principle of CLT applies to all these dimensions of psychological distance (e.g., Fujita et al. 2006; Kivetz and Kivetz 2006).

The majority of CLT research, however, has focused only on a single dimension of psychological distance. Little research has examined the influence of multiple dimensions, with only a few exceptions. For example, in a recent study, Chandran and Menon (2004; study 1) show that temporal framing (every day vs. every year) moderates the effects of social distance on risk perceptions of the self versus of other people. Nevertheless, what still remains unanswered is how multiple distance dimensions interact with each other to form representations (i.e., construal levels) of events and products, and consequently evaluations of them.

The influence of multiple distance dimensions on consumer evaluations is of particular concern to marketing. Consumers and marketers often make decisions that involve more than one dimension, such as a decision that involves both temporal distance (e.g., planning a trip for the coming weekend vs. for 1 year later) and social distance (e.g., planning a trip for self vs. for others; investing for self vs. providing investment advice for others). Thus, the current research intends to extend the CLT literature and examines how consumers' construals and evaluations of products may change when multiple distance dimensions are involved. Specifically, our research contributes to the CLT literature by illuminating an interaction effect of the two important psychological distance dimensions, temporal and social, on consumer evaluations of products. We also provide a possible explanation of the interaction effect such that different distance dimensions may jointly determine the psychological distance of the products, which in turn influences con-

struals and evaluations of the products. In addition, our research adopts multiple manipulations of levels of construal (i.e., why vs. how features, primary vs. secondary features) and social distance (i.e., self vs. other, an in-group vs. out-group member) and employs different product categories, which increases the generalizability of our research.

We begin with the theoretical framework for the effects of multiple distance dimensions on product evaluations. Next, we report the results of a pilot study and two experiments, which provide converging evidence to our theory. Finally, we discuss contributions and implications of the findings.

THEORETICAL BACKGROUND

Construal Level Theory

Construal level theory (Liberman and Trope 1998; Trope and Liberman 2003) is a leading theory on how people make decisions regarding temporally near versus temporally distant outcomes. This theory proposes that temporal distance, defined as the perceived proximity of an event in time, changes people's perceptions of the event by altering the way people mentally construe it. More specifically, it posits that distant future events are construed as abstract, primary, and global aspects that center on why the event needs to be done (i.e., high-level construals), whereas near future events are construed as concrete, secondary, and local aspects, which center on how to do the event (i.e., low-level construals).

Changes in construal levels may lead people to shift their evaluations of an event when temporal information changes such that people's evaluations of an event are more influenced by the value associated with high-level (low-level) construals when the event is to occur in the distant (near) future. For example, an interesting seminar in an inconvenient location (positive high-level construal but negative low-level construal) would be evaluated more favorably if the seminar were held in the distant future rather than if it were held in the near future.

In addition to temporal distance, Trope and Liberman (2003) propose that the general principle of CLT may also hold for other distance dimensions such as social distance, spatial distance, and the degree of uncertainty. This proposition has received some support in more recent literature. For instance, it has been shown that when social distance to another person increases from an in-group member (close social distance) to an out-group member (far social distance), people will construe the target person using abstract, primary concepts such as stereotypes and traits. Consequently, they will be more influenced by these stereotypes and traits in forming their evaluations (Idson and Mischel 2001; Linville, Fischer, and Yoon 1996). Similarly, it has been shown that spatially distant events occurring in a different country are associated more with high-level construals than events occurring in the local city (Fujita et al. 2006). On an investigation of mood effects, Kivetz and Kivetz (2006) find converging results using multiple ways of ma-

nipulating psychological distance (e.g., near vs. distant future, self-relevant vs. self-irrelevant, real vs. hypothetical outcomes) and provide evidence that the same general principle may underlie the effects of different dimensions of psychological distance.

Effects of Multidimensions of Psychological Distance

The parallels among different dimensions can be explained by the conceptual framework of psychological distance, which was first introduced by Lewin (1951) and recently revived within CLT (Trope and Liberman 2003). Psychological distance is defined as the subjective distance between an actor and an event in the actor's psychological space, and the theory posits that different distance dimensions can be unified under one psychological space. A natural question that arises next is what would be the joint influence of more than one distance dimension on an event (e.g., Trope, Liberman, and Wakslak 2007). Will different dimensions of psychological distance influence construal levels of an event independently (i.e., in a linear fashion or additively) or interactively (i.e., subadditively)?

Subadditivity When Combining Multiple Psychological Distance Dimensions. A theory bearing relevance to this issue is the well-documented Weber-Fechner law in psychophysical research. The Weber-Fechner law (Dehaene 2003) states a diminishing sensitivity to physical distances or sensory magnitudes. It posits that the threshold for discriminating between two sensory stimuli (e.g., two sounds) increases with the stimulus intensity (e.g., loudness) and this diminishing sensitivity can be mathematically captured by a logarithmic function (Dehaene 2003).

Studies from both animal research (Ainslie 1975) and human behavior research (e.g., Grewal and Marmorstein 1994; Zauberan et al. 2007) have repeatedly demonstrated a diminishing sensitivity of human perception of distance. Studies show that when target objects are moving along one psychological distance dimension (such as temporal or geographical), both animals and humans are more sensitive to a change from a proximal position to a distal position than to the same change from a distal position to a further distant position.

The diminishing sensitivity of psychological distance implies that when there are multiple psychological distance dimensions involved for an event, the resultant subjective perception of the psychological distance would not increase linearly with the increase in distance induced by a second or more dimensions; rather, it would increase based on a subadditive function. In other words, the impact of distance induced by one dimension on the perceived distance of an event will diminish as the distance on the other dimensions increases.

More specifically, let us consider the effects of two important distance dimensions, social and temporal distance, as investigated in the current research. For a target event, when both dimensions are proximal (e.g., an event for self

is to occur tomorrow), the event would be perceived as proximal and construed at a low level. On the other hand, when either of the two dimensions is distal (e.g., an event for others is to occur tomorrow, or an event for self is to occur 1 year later), the event would be perceived as distal and construed at a higher level than is the event when both dimensions are proximal. Last, when both dimensions are distal (e.g., an event for others is to occur 1 year later), due to the diminishing sensitivity to the added distance at a distant position, the resultant construal of an event would be similar to that when either psychological distance is distal. Further, the difference in the perceived distance and construal levels of an event will influence people's evaluations of that event to the extent that the values associated with high- and low-level construals differ. Based on the logic elaborated, we make the following prediction:

- H1:** When two dimensions of psychological distance (i.e., temporal distance and social distance) are involved in an event (i.e., product), they would interactively influence the evaluations of the event. Specifically, when both dimensions are proximal, product evaluations would be more influenced by the value associated with low-level construals. On the other hand, when either or both dimensions are distal, product evaluations would be more influenced by the value associated with high-level construals.

We tested our prediction in two experiments that examined participants' evaluations of different products with conflicting values associated with high-level and low-level construals. Before conducting these experiments, we conducted a pilot study to test our theorizing that participants would perceive the distance of an event differently depending on different conditions induced by the two distance dimensions.

PILOT STUDY

The pilot study was conducted to investigate the effects of social and temporal distance on participants' perceived distance of an event. This study had a 2 (social distance: close vs. far) by 2 (temporal distance: near vs. distant) between-subjects factorial design. One hundred and thirty-seven students participated, and they were assigned randomly to one of the four conditions.

We manipulated social distance (an event for self vs. other) and temporal distance (an event for tomorrow vs. 1 year later; Kivetz and Kivetz 2006; Trope and Liberman 2003) when giving instructions to participants. Specifically, participants were asked to imagine themselves (socially close) or person X, a student they did not know (socially distant), as doing a series of activities tomorrow (temporally near) or 1 year later (temporally far). The target activities were 18 actions (e.g., reading, washing clothes), which were adopted from Liberman and Trope (1998). Next, participants were asked to report how close/far they felt each action was

to them on a 7-point scale anchored by 1 (very close) and 7 (very far). Participants were then thanked and debriefed.

Participants' perceived distance of these 18 actions were averaged to form a perceived distance index (Cronbach's $\alpha = .67$). As predicted, a two-way ANOVA on this index revealed a significant interaction of social and temporal distance ($F(1, 133) = 4.97, p < .05$). Planned contrasts showed that this interaction was primarily driven by the close social and near temporal distance condition, which was significantly different from the other three conditions (F 's(1, 133) $> 3.2, p$'s $< .10$). Specifically, in the close social and near temporal distance condition, participants perceived the actions as being much closer to them ($M = 3.27$) than in the other conditions when either social distance ($M = 3.60$) or temporal distance ($M = 3.78$), or both ($M = 3.60$), were distal. The differences between the latter three conditions were insignificant (F 's $< 1.36, p$'s $> .20$).

Moreover, we would like to note here that in all of our studies (pilot study and two experiments), we used the common method employed in attitude literature to manipulate participants' motivation level to be high. Immediately after the evaluation task, we checked their motivation level by asking them how involved they were when doing the task, and there were no differences between participants' motivation levels across all cells (p 's $> .10$). Motivation is thus not discussed further.

The pilot study provides the first piece of evidence supporting our theorizing. We predicted and found that when the two dimensions were proximal, participants perceived the event as closer, whereas when either or both dimensions were distal, they perceived the event as more distal. This supports our theory that when two or more distance dimensions are involved, people might unify the different dimensions within one psychological distance space and combine the distance induced by each dimension interactively, not linearly. Thus, the position of an event on one dimension is found to moderate the impact of the other distance dimensions on the perceived distance of the event.

We further predict that differences in perceived distance would result in different evaluations to the extent that values associated with high-level and low-level construals are different. We tested this in experiment 1 with two versions of a product (i.e., online training program): one had positive values associated with high-level construals but negative values associated with low-level construals, while the other had negative values associated with high-level construals but positive values associated with low-level construals.

We predicted opposite patterns of evaluations between the two product versions. Specifically, for a product with positive (negative) high-level but negative (positive) low-level construals, participants would evaluate the product significantly lower (higher) in the close social and near temporal distance condition (more consistent with the value of low-level construals) than in the other three conditions.

EXPERIMENT 1

Method

Pretest: Product Stimuli. An online training program was selected as the target product based on its relevance to the participants. A pretest with 80 participants from the same subject pool as in the main experiment was conducted to develop the two product versions (positive high level but negative low level vs. negative high level but positive low level) and test the effectiveness of the manipulations of construal levels. Based on the distinctions of "why" versus "how" features (Trope and Liberman 2003) as high- versus low-level construal, each version had three high-level features that described the contents of the training program and three low-level features that described the usability of the program. Values associated with high- and low-level features within each version were conflicting with each other.

Pretest participants were randomly assigned to one of the two versions of the product and were asked to read the product description carefully. Next, they evaluated each of the high- and low-level features on three items including to what extent they thought each feature described why to use the program and how to use the program, and how important each feature was. All items were on a 9-point scale anchored by 1 (not at all) and 9 (extremely).

To analyze the data, we first created a construal level index by subtracting the perceived degree of the "how" feature from that of the "why" feature for each participant. The greater the number was, the higher the construal level of the feature. As predicted, the three high-level construal features (Cronbach's $\alpha = .78$) were more about why to use the program ($M = 1.51$), whereas the three low-level construal features (Cronbach's $\alpha = .65$) were more about how to use the program ($M = -.67$). The effectiveness of our construal level manipulations was supported.

Next, we tested whether the manipulation of construal levels would confound with the importance of features. Results revealed that participants perceived the high-level construal features ($M = 5.85$) as being equally important to the low-level construal features ($M = 6.05$; $F < 1$), ruling out the potential confound. Based on these results, we used the two versions of the training program as the product stimuli in the main study.

Design. Experiment 1 had a 2 (social distance: close vs. far) by 2 (temporal distance: near vs. distant) by 2 (product version: positive high level but negative low level vs. negative high level but positive low level) by 2 (information order: high level first, low level second vs. low level first, high level second) between-subjects factorial design. The last factor was included to rule out any possible primacy and/or recency effects on product evaluations. A total of 350 students participated, and each was assigned randomly to one of the 16 conditions.

Procedure. Upon arrival, participants were told that a consulting firm was going to launch a new online training program and was interested in knowing how students would

evaluate it. This instruction served to manipulate both social and temporal distance, which were adopted from previous research (Kivetz and Kivetz 2006; Trope and Liberman 2003). Specifically, participants in the close social condition were instructed to report their own evaluation of the program that would be available tomorrow (near temporal condition) or 1 year from now (distant temporal condition), whereas participants in the far social condition were asked to predict how student X, a student they did not know, would evaluate the program that would be available tomorrow or 1 year from now. Next, participants read one of the two versions of the online training program. Their evaluations were measured on four items (very bad/very good; very unfavorable/very favorable; very dissatisfied/very satisfied; very useless/very useful) on a 9-point scale and then averaged to create their overall evaluation index (Cronbach's $\alpha = .91$). Participants were then thanked and debriefed.

Results

Participants' product evaluations were first analyzed via an ANOVA using the four-way factorial design. As no reliable effects of information order were observed (p 's $> .10$) and the patterns of results were the same when we conducted analyses with and without the information order factor, it was dropped from further analysis for the purpose of simplicity. Results of a three-way ANOVA then revealed a main effect of the product version ($F(1, 343) = 4.42, p < .05$), showing that the product with positive high-level but negative low-level construals was evaluated more positively ($M = 5.01$) than the one with negative high-level but positive low-level construals ($M = 4.73$). However, consistent with our hypothesis, this main effect was qualified by a significant three-way interaction ($F(1, 343) = 9.33, p < .01$) of social distance, temporal distance, and product version. Further examination of these effects supported our predictions, showing that the effects varied depending on the product version. Specifically, two-way ANOVAs within each product version revealed a two-way interaction of social and temporal distance, and both interactions were primarily driven by the close social and near temporal distance condition being different from the other three conditions. As table 1 illustrates, when the training program had positive values associated with the high-level construals but negative values associated with the low-level construals ($F_{soc \times temp}(1, 343) = 3.88, p < .05$), participants in the close social and near temporal distance condition reported a significantly lower evaluation ($M = 4.62$) than those in the other three conditions ($M = 5.29, M = 5.11$, and $M = 5.01$, respectively; p 's $< .05$), whereas when the training program had negative values associated with the high-level construals but positive values associated with the low-level construals ($F_{soc \times temp}(1, 343) = 5.10, p < .05$), participants in the close social and near temporal distance condition reported a significantly higher evaluation ($M = 5.21$) than those in the other three conditions ($M = 4.49, M = 4.51$, and $M = 4.71$, respectively; p 's $< .05$). For both product versions, participants in the other three conditions (either

TABLE 1
TREATMENT RESULTS AS A FUNCTION OF TWO DIMENSIONS OF PSYCHOLOGICAL DISTANCE

	Psychological distance			
	Close social, near temporal	Close social, distant temporal	Far social, near temporal	Far social, distant temporal
Experiment 1 (training program):				
Positive high, negative low level	4.62 ^a	5.29 ^b	5.11 ^b	5.01 ^b
Negative high, positive high level	5.21 ^b	4.51 ^a	4.49 ^a	4.71 ^a
Difference	-.59 ^a	.78 ^a	.62 ^a	.30

NOTE.—Numbers with different superscripts within each row are significant[†] different from each other at $p < .05$.
[†]Indicates that the difference between the two types of products is significant at $p < .05$.

social or temporal distance, or both were distal) showed similar evaluations (p 's $> .10$).

In addition, we conducted simple effects tests to investigate whether the effects of the product version depended on different conditions of social and temporal distance. As reported in table 1, when both social and temporal distance were proximal, participants' product evaluations were greater when the product had negative high-level but positive low-level construals ($M = 5.21$) than when the product had positive high-level but negative low-level construals ($M = 4.62$; $F(1, 343) = 4.46$, $p < .05$). On the other hand, when either or both dimensions were distal, as there were no significant differences across these three conditions in the simple effect of the product version ($F(2, 343) = .77$, $p > .40$), we pooled these three conditions. As a result, participants' product evaluations were greater when the product had positive high-level but negative low-level construals ($M = 5.14$) than when the product had negative high-level but positive low-level construals ($M = 4.57$; $F(1, 343) = 13.10$, $p < .001$).

Discussion

The results of experiment 1 provide further evidence supporting our main hypothesis. Consistent with the prediction, we found that when both dimensions of psychological distance were proximal (vs. either or both dimensions being distal), participants' evaluations of the program were more influenced by the values associated with low-level construal features rather than the values associated with high-level construal features.