

Influencing attitudes toward near and distant objects

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Abstract

It is argued that the temporal distance of attitude objects systematically changes how the object is mentally represented, and thus influences the strength of particular persuasive appeals. Three experiments tested the hypothesis that people preferentially attend to arguments that highlight primary, abstract (high-level) vs. incidental, concrete (low-level) features when attitude objects are temporally distant vs. near. Results suggested that when attitude objects are temporally distant vs. near, arguments emphasizing primary vs. secondary features (Study 1), desirability vs. feasibility features (Study 2), and general classes vs. specific cases are more persuasive (Study 3). The relation of construal theory to dual process theories of persuasion and persuasion phenomena, such as personal relevance effects and functional matching effects, are discussed.

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In everyday life, attitude objects that people evaluate may be near or distant in time. For example, students may evaluate courses being offered at their college weeks vs. just days before enrollment. Similarly, voters might be asked to decide whether to adopt a policy that is to be implemented several years later vs. in only a few months. What kinds of information would influence people's attitudes toward these objects and events? For example, would students be more persuaded by the quality of a professor's lectures, or the location of the class? Will voters be more concerned about the outcomes a policy might promote, or how difficult the implementation of the policy might be? The question we address in this article is how the temporal distance of these objects—the difference in time between the present and experiencing the attitude object—influences the impact (and hence success) of particular persuasive appeals on attitude change.

Surprisingly, there has been little research examining directly whether the temporal distance of an attitude object affects persuasion processes. Most persuasion studies relevant to time have manipulated temporal distance of attitude objects as an operationalization of personal relevance (Petty & Cacioppo, 1984; Petty, Cacioppo, & Goldman, 1981). Personal relevance is the extent to which an issue has important personal consequences, and is typically manipulated by varying the degree to which an issue has a direct impact on study participants. For example, in a now classic study (Petty, Cacioppo, et al., 1981), student participants were informed that their university had adopted comprehensive senior examinations, which were to be implemented in one year (high personal relevance) or in a decade (low personal relevance). They were then presented with strong and weak arguments in favor of the examinations by experts or non-experts. Those who believed the exams would be implemented in a year were more sensitive to the strength of the argument presented, whereas those who believed that the exams would be

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implemented in a decade were more sensitive to the source of the argument (i.e., whether the source was an expert).

Data from personal relevance studies such as the one above are often interpreted to be consistent with dual process models of attitudes, which distinguish between two types of information processing (e.g., Chaiken, Giner-Sorolla, & Chen, 1996; Petty & Cacioppo, 1986): systematic (central) vs. heuristic (peripheral) processing. Systematic/central processing entails careful, elaborative, and reflective thinking and reasoning about relevant stimuli (such as the arguments presented, the source of and causes for the arguments). Such information processing is effortful, and requires not only sufficient motivation but also cognitive capacity. Heuristic/peripheral processing, on the other hand, entails the application of well-learned decision rules that obviate the need to deliberate information deeply and thoroughly. These simple associative rules or heuristics, such as “experts know best” and “argument length implies argument strength,” allow evaluations and judgments to be formed quickly and efficiently with relatively little cognitive effort. Dual process models suggest that when motivation to process information is sufficiently high (high personal relevance), individuals engage in systematic/central processing and are more sensitive to argument strength. When motivation is low (low personal relevance), individuals engage in heuristic/peripheral processing and are more sensitive to heuristic cues such as source expertise or consensus opinion.

Mental construal of attitude objects

Increasing temporal distance may decrease the personal relevance of attitude objects, causing individuals to engage in less systematic and more heuristic processing. Time, however, may also independently change how an attitude object is understood, i.e., what features are made accessible and relevant in evaluation (e.g., Eagly & Chaiken, 1993). Attitude objects can be represented or construed in various ways. For example, enrolling in an academic course might be construed as promoting one’s education vs. enduring a two-hour lecture. One’s representation might preferentially focus on abstract features that are true of all courses (e.g., a syllabus enumerating course materials), or concrete features specific to a particular course (e.g., how comfortable the seats are). Construal level theory (Liberman, Trope, & Stephan, 2007; Trope & Liberman, 2003; Trope, Liberman, & Wakslak, 2007) suggests that the temporal distance of an attitude object systematically changes how the object is mentally construed. The theory proposes that as individuals become removed from the direct experience of objects and events, detailed information about them becomes unreliable or unavailable. As such, individuals must represent distant events by their more abstract, essential (high-level) features. This association between time and abstraction is thought to be overgeneralized such that even with equivalent information, construals of objects or events are more high-level when they are temporally distant vs.

near. Research has shown, for example, that individuals represent temporally distant objects increasingly in terms of their prototypical vs. peripheral features (Liberman, Sagristano, & Trope, 2002). Perceivers are also more likely to organize behavior in terms of abstract traits when thinking about temporally distant vs. near individuals (Nussbaum, Trope, & Liberman, 2003). Similarly, individuals tend to identify distant vs. near future actions in terms of desirability (superordinate ends) vs. feasibility (subordinate means to an end; Liberman & Trope, 1998).

As a direct consequence of activating different mental construals, preferences and decisions shift systematically as a function of temporal distance. High-level construals enhance the impact of primary, abstract (high-level) vs. incidental, concrete (low-level) features of objects and events in judgment. For example, individuals’ decisions tend to be based on superordinate concerns of desirability (ends) over subordinate concerns of feasibility (means to an end) for distant future vs. near future events (Liberman & Trope, 1998; Sagristano, Trope, & Liberman, 2002). Individuals are also more likely to make choices that concur with primary, goal-relevant concerns vs. incidental, goal-irrelevant concerns when deciding between temporally distant vs. near objects (Eyal, Liberman, Sagristano, & Trope, submitted for publication; Trope & Liberman, 2000).

Levels of construal are distinct from dual-process models of attitudes in that extracting the abstract, central aspects of an object or event (high-level construals) is not necessarily more or less effortful than attending to the contextual, concrete details (low-level construals). For example, considering superordinate end-states of an action is not necessarily more or less demanding of one’s cognitive resources than thinking about specific means for achieving those ends. Moreover, it is possible to engage in both heuristic and systematic processing when considering a particular high- vs. low-level feature. For example, one can process both how much space an apartment has (high-level, desirability feature) and how far away it is from work (low-level, feasibility issue) more or less deliberately. High- and low-level construals also differ in the range of cases that they can be applied to. Whereas high-level construals can be applied globally and broadly to a wide range of cases (apartments in New York City), low-level construals are more specific representations of a particular case (this apartment in the East Village). Dual process models do not make such distinctions in the range of cases to which systematic or heuristic processing are applicable. Both modes of processing are equally applicable for considering a particular case vs. class of cases.

Temporal distance and persuasion

We propose that time changes the mental construal of attitude objects and influences what features of an attitude object are attended to and perceived as relevant. The activation of high-level construals by increasing temporal distance should facilitate attention to high- vs. low-level

arguments. Therefore, we predict that messages highlighting (or consisting mostly of) positive high-level features vs. positive low-level features will have greater impact on attitudes toward objects in the distant vs. near future.¹ For example, desirability vs. feasibility arguments should be preferentially attended to and cause greater attitude change for distant vs. near future attitude objects. Similarly, messages appealing to goal-relevant vs. goal-irrelevant issues should be more influential when referring to distant vs. near future objects.

Our approach is similar to “functional matching” approaches to attitude change and persuasion (e.g., DeBono, 1987; Katz, 1960; Snyder & DeBono, 1985). Functional theories of attitudes suggest that attitudes serve particular functions (e.g., value-expressive, ego-defensive, utilitarian), and that arguments that address these underlying functions are more likely to be successful than those that do not. For example, Snyder and DeBono (1985) demonstrated that high self-monitoring individuals, those who are particularly sensitive to the type of image they are projecting in social situations, are more persuaded by messages that speak to a product’s image vs. quality. In contrast, low self-monitors, who presumably do not have such concerns, are more persuaded by quality rather than image arguments. Similarly, research by Strathman, Gleicher, Boninger, and Edwards (1994) suggests that there are stable individual differences in the weight that people place on the consequences of their behavior, and that these differences predict attitude change in response to different persuasive messages. Specifically, for those high in consideration for future consequences, arguments that stress distant vs. near future outcomes of their decisions and actions are more persuasive. Our approach dovetails with this work on matching by suggesting that the temporal distance of an attitude object, through mental construal, facilitates attention to high- vs. low-level features. When considering temporally distant vs. near attitude objects, people should preferentially attend to arguments that stress positive high-level vs. low-level features, which in turn should impact attitude change.²

We report the results of three experiments that examine the effect of time on attitude change processes. In each experiment, participants were presented with messages that emphasized high- vs. low-level features of temporally near vs. distant attitude objects. Different aspects of high- vs.

low-level construals were manipulated across the three studies. The manipulation of high- vs. low-level features in Study 1, for example, draws from research suggesting that high-level construals capture primary goal-relevant vs. incidental goal-irrelevant features of an event (Fujita, Trope, Liberman, & Levin-Sagi, 2006; Trope & Liberman, 2000). Study 2 manipulates high- vs. low-level features by highlighting desirability (end-related) vs. feasibility (means-related) features (Liberman & Trope, 1998; Sagristano et al., 2002). Finally, Study 3 manipulates the extent to which an argument refers to a superordinate category vs. a subordinate exemplar (Fujita, Trope, et al., 2006; Liberman et al., 2002). Note, both temporally distant and near attitude objects presented to participants in these studies were personally relevant (or irrelevant) in that they both could be expected to have similar personal consequences for participants. What differed was when these consequences could be expected to occur. Thus, temporal distance served as a manipulation of construal rather than personal relevance.

Study 1: Primary vs. secondary arguments

Method

Participants

Seventy-one students (50 women) at New York University in an Introductory Psychology course participated in the study in exchange for course credit. All students were within their first to third years of college. Participants were randomly assigned to condition.

Materials and procedures

Participants were run in groups of one to five. As a cover story, participants were informed that they were part of a pilot program designed by the Department of Psychology to test the effectiveness of a new format of presenting course information to students. They were then presented with descriptions of four classes (social, developmental, cognitive, and abnormal psychology) that were ostensibly being offered either next semester (near future condition) or next academic year (distant future condition), and asked to indicate their attitudes toward each class. The time frame we used allowed the issue of evaluating classes to be personally relevant for participants, as they could all be expected to enroll in courses within that time (as none of them were graduating seniors; see above), rendering their preferences as having equally important personal consequences in both temporal distance conditions.

Each course description was modeled after actual course descriptions in the NYU course catalog, modified to be approximately the same word length and detail. After each description, participants were presented with six statements endorsing the course, ostensibly provided by students who had previously been enrolled. All arguments were positive in that they supported the attractiveness of the courses. In half of the class descriptions presented to participants,

¹ This prediction assumes persuasive appeals are supported by strong arguments; i.e., they generate positive thoughts toward the attitude object (e.g., Eagly & Chaiken, 1993; Petty, Ostrom, & Brock, 1981). However, it is possible that preferential attention to features supported by weak arguments will actually lead to less persuasion. We address this issue theoretically and empirically later in the paper.

² Although consideration of future consequences and construals may be associated (Liberman, Trope, McCrea, & Sherman, 2007), they are independent constructs. The consideration of future consequences does not in itself imply anything about the construal of those consequences. One can consider future consequences concretely or abstractly, for example.

the majority of the statements (four out of six) stressed low-level features of the course. The remaining two arguments emphasized high-level features of the course. In the other half of the class descriptions, this was reversed; that is, four of the statements stressed high-level aspects of the course, whereas the remaining two stressed low-level aspects. Thus two of the courses were endorsed by few high- but many low-level arguments, whereas the other two were supported by many high- but few low-level arguments.

Drawing from previous research, we reasoned that primary, goal-relevant features of an event would represent high-level features whereas secondary, goal-irrelevant features would represent low-level features (Fujita, Trope, et al., 2006; Trope & Liberman, 2000). To determine what students considered to be goal-relevant vs. goal-irrelevant features of courses when selecting classes, we conducted a pilot study. Thirty NYU students were presented with a list of twenty-eight features that might be relevant in deciding whether to take a course or not. Participants rated on a nine-point Likert scale how goal-relevant or important each feature should be in one's decision-making when choosing classes, anchored at 1 (*not at all important*) and 9 (*extremely important*). From these data, we selected six features that were rated as highly important ($M = 6.77$, $SD = 1.10$) to represent primary goal-relevant (high-level) features and six that were rated as least important ($M = 3.98$, $SD = 1.15$) to represent secondary goal-irrelevant (low-level) features.³ The six positive high-level features were comprised of fair grading, clear lectures, helpful professors, interesting course material, interesting reading, and comprehensive coverage of material. The six positive low-level features consisted of quality of lecture hall facilities, use of Blackboard educational software, frequent use of audiovisuals, opportunity to meet and interact with other students, lack of weekly discussion sections, and an absence of term papers.⁴

For each feature, we created two approximately equally positive statements, creating a pool of 24 endorsing arguments. For example, for the high-level feature of fair grading, we constructed the arguments: "The professors and TA's do a really good job of grading in the class. It's always fair and you're never surprised by what you get. My grades always reflected what I knew and had learned" and "One really good thing about this class was how fair and open the grading was. It was always based on whether you knew what you were talking about. I never had a prob-

lem or complain about the grading in this class." For the low-level feature of the quality of the lecture hall facilities, the arguments read: "One really nice thing about taking this class is that it's held in a newly renovated lecture hall. The seats are comfortable, the lighting is good, and you can always see and hear the professor no matter where you sit" and "The lecture hall for this class is great. It's been recently re-done, and it really adds to the class experience. It's spacious, comfortable, and bright, so you never feel cramped in like other rooms. The acoustics are nice too—you can always hear what's being said." From this pool, we randomly selected arguments to create four sets of six arguments, with the restriction that no feature appeared twice in the same set. Again, half of the argument sets had few (two) high- but many (four) low-level arguments, whereas the other half had many (four) high- but few (two) low-level arguments. This resulted in four statement sets that were then randomly assigned to a class description. The order in which the statements were presented was counterbalanced, as was the assignment of argument sets to classes and the order in which the classes were presented.

To measure how persuasive each of the class descriptions were, participants were asked to indicate how much they would like to take the course, how appealing the class was to them, and how interested they would be in taking the course. Participants responded to these items using nine-point Likert scales anchored at 1 (*not at all*) to 9 (*extremely*). Participants then completed demographic information, were fully debriefed, and dismissed.

Results and discussion

The three items measuring participants' attitudes toward a given course were aggregated to form a single index for each class (α 's = .84–.86). To simplify analyses, the ratings of the two courses supported by mainly high-level arguments were averaged within each participant, as were the ratings of two courses endorsed by mainly low-level arguments. These ratings were then analyzed using a 2 (time: near vs. distant) \times 2 (argument: primary vs. secondary) mixed ANOVA with time as a between-subject factor and argument as a within-subject factor. Participants had more positive attitudes when classes were described with more high-level ($M = 6.52$, $SD = 1.31$) vs. low-level arguments ($M = 6.22$, $SD = 1.27$), $F(1, 69) = 3.55$, $p = .06$, $r = .22$. This effect, however, was qualified by a predicted significant interaction between time and argument, $F(1, 69) = 4.46$, $p = .04$, $r = .25$. As evident in Fig. 1, participants in the near future condition did not differ significantly in their attitudes for classes endorsed by mainly high- ($M = 6.50$, $SD = 1.20$) vs. mainly low-level arguments ($M = 6.47$, $SD = 1.45$), $F(1, 69) = .02$, $p = .88$, $r = .02$. In contrast, participants in the distant condition were much more discriminating, with significantly more positive attitudes for classes endorsed preferentially by high- ($M = 6.57$, $SD = 1.19$) vs. low-level arguments

³ Feature importance was measured to determine to what extent each feature represented a primary or goal-relevant (high-level) aspect of choosing classes. One drawback of this operationalization is that importance may be indicative of other features that might affect argument strength, such as likelihood or desirability. We address this possibility by using different manipulations of construals (Studies 2 and 3) and explicitly manipulating argument strength independently of construal level (Study 3) in subsequent studies.

⁴ In our sample of NYU students, not having to attend weekly sections and to write papers were considered to be positive features.

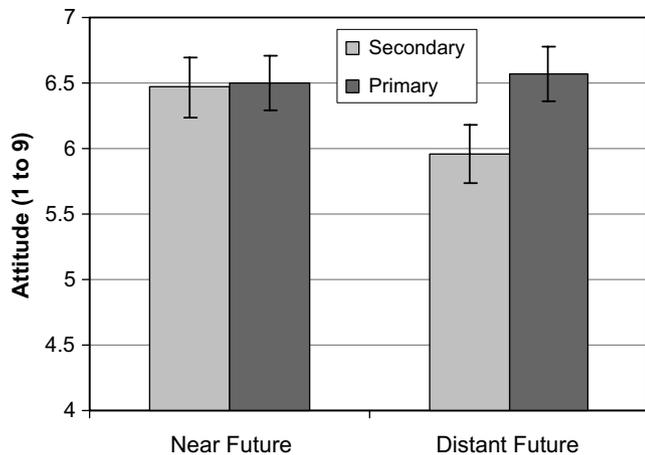


Fig. 1. Class evaluation by temporal distance and argument level (Study 1). Arguments that stressed primary (high-level) features lead to more positive attitudes relative to secondary (low-level) features when classes were temporally distant vs. near. Error bars depict plus or minus one standard error.

($M = 5.96$, $SD = 1.29$), $F(1, 69) = 8.33$, $p = .005$, $r = .33$. Thus, messages appealing more to primary, high-level features were more persuasive than those appealing to secondary, low-level features of distant vs. near future attitude objects.

Study 2 was designed to provide further evidence that positive high- vs. low-level arguments are preferentially attended to, and thus have greater impact on attitudes, when attitude objects are temporally distant vs. near. Rather than present positive primary vs. secondary arguments, we manipulated another aspect of high- vs. low-level construals. Previous research has suggested that the desirability of an event, to the extent that it speaks to sought-after superordinate ends, is characteristic of high-level construals, whereas the feasibility of an event, to the extent that it speaks to subordinate means, is characteristic of low-level construals (Lieberman & Trope, 1998; Sagristano et al., 2002). In Study 2, participants were presented with a persuasive message that stressed a positive desirability vs. feasibility feature of a temporally near vs. distant attitude object. We predicted that an argument emphasizing positive desirability vs. feasibility features would have greater impact on attitudes toward temporally distant vs. near attitude objects.

Study 2: Desirability vs. feasibility arguments

Method

Participants

Participants were 112 undergraduate psychology students (70 women) from Tel Aviv University and from Tel Aviv-Jaffa College, ages 18–55, who participated in the study as part of their introductory course requirements. They were randomly assigned to condition.

Materials and procedures

Participants were asked to imagine finding a sale for DVD players on the Internet that was to occur this week (near future condition) vs. 3 months from now (distant future condition). The time frame of a few months was selected to insure that scenario was equally relevant (or irrelevant) across conditions. Participants were then presented with seven positive arguments endorsing the purchase of a particular DVD player. Six of these arguments were identical in both conditions (high-quality digital sound system, two-year warranty, special student discounts, two free DVDs, user-friendly and easy to operate, DVDs can be viewed directly through a television without distortion). Half of the participants (high-level appeal condition) were presented with a seventh argument that stressed an additional positive desirability feature (DVD player is made of environmentally-friendly materials), whereas the other half were presented with an argument that stressed an additional feasibility feature (manual is easy to use).⁵ This critical argument was the first argument with which participants were presented. After reading over the arguments, participants indicated their evaluation of the product on a seven-point Likert scale, anchored at -3 (*bad product*) and $+3$ (*good product*).

Results and discussion

Participants' evaluations of the DVD player were analyzed using a 2 (time: near vs. distant future) \times 2 (argument: desirability vs. feasibility) between-subjects ANOVA. Both time and argument main effects were not significant ($F < 1$). More importantly, as predicted, the interaction between time and argument was significant, $F(1, 108) = 4.33$, $p = .04$, $r = .20$. As evident in Fig. 2, when buying a DVD player for the distant future, participants were more persuaded by a message that preferentially stressed a positive desirability features ($M = 2.14$, $SD = .97$) vs. feasibility features ($M = 1.64$, $SD = .95$), $F(1, 108) = 4.04$, $p = .05$, $r = .19$. When buying the DVD player for the near future, in contrast, no significant difference between arguments stressing desirability ($M = 1.63$, $SD = .79$) vs. feasibility ($M = 1.86$, $SD = .99$), $F(1, 108) = .87$, $p = .35$, $r = .09$. These results provide additional support for the hypothesis that arguments appealing to positive high-level vs. low-level

⁵ To confirm that having environmentally friendly products was indeed a positive desirability feature, we ran a pilot study sampling from the same participant pool ($N = 26$). Participants completed the Schwartz (1992) values scale. Universalism ($M = 4.1$), defined as an "understanding, appreciation, tolerance, and protection of the welfare of all people and of nature [italics added for emphasis]," was rated more similar to the most important values (benevolence and self-direction, M 's = 4.9) than the least important (power and tradition, M 's ~ 2.4). It also bears noting that the six arguments that all participants were presented with were a mix of desirability- and feasibility-related features. Presenting only one additional desirability vs. feasibility argument as a manipulation of feature level thus represents a very conservative test of our hypothesis.

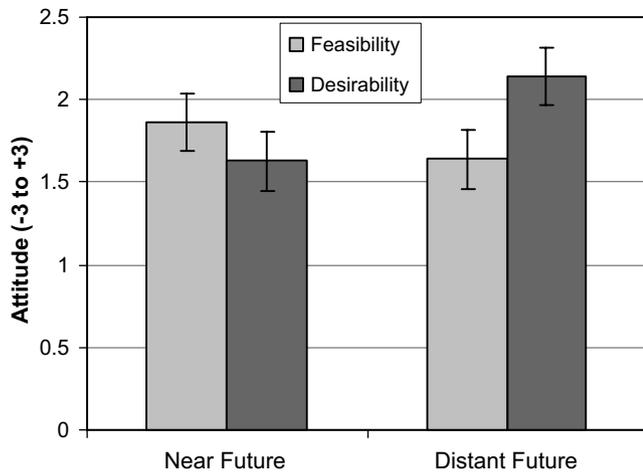


Fig. 2. Product evaluation by time and argument level (Study 2). Arguments that preferentially emphasized desirability (high-level) features lead to relatively more positive attitudes than secondary (low-level) features when consumer products were temporally distant vs. near. Error bars depict plus or minus one standard error.

features were preferentially attended to when referring to temporally distant vs. near attitude objects.

Studies 1 and 2 provide preliminary evidence that temporal distance affects persuasion processes through mental construal. However, neither study provides any direct evidence of the proposed mechanism that temporal distance facilitates attention to high- vs. low-level information. To measure attention to particular types of information, Study 3 presented participants with strong vs. weak arguments and measured their impact on attitude change. Heightened attention to any given argument should be reflected in greater sensitivity to the strength of that argument (e.g., Chaiken et al., 1996; Petty & Cacioppo, 1986; Petty & Wegener, 1998). Sensitivity to the strength of arguments should be enhanced when the level of the information highlighted in the argument accords with the temporal construal of the recipient.

Study 3 was designed to test this hypothesis. Participants were presented with strong vs. weak arguments for temporally near vs. distant objects. To make these arguments relevant to high- vs. low-level construals, we constructed arguments that either referred to a superordinate category of an attitude object (e.g., orcas in Puget Sound) or subordinate, specific exemplar (e.g., Simoon, an orca in Puget Sound). Manipulating construal level through the content of the argument, as we did in Studies 1 and 2, potentially confounds argument level with argument strength. By manipulating the target rather than the content of the messages, we were able to manipulate argument level and strength independently (see Footnote 3; see also, Petty & Wegener, 1998; Updegraff, Sherman, Luyster, & Mann, 2007; Wheeler, Petty, & Bizer, 2005). We predicted that participants' attitudes toward temporally distant attitude objects should be more sensitive to argument strength when they refer to a superordinate (high-level) category vs. subordinate (low-level) exemplar.

Study 3: Strong vs. weak arguments for categories vs. exemplars

Method

Participants. Two hundred and six students (146 women) at The Ohio State University in an Introductory Psychology course participated in the study in exchange for course credit. Participants were randomly assigned to condition.

Materials and procedures. Participants were run in groups of up to 22. As a cover story, they were informed that the Department of Psychology and School of Communication at OSU were testing materials to be used in a fund-raiser for a wildlife conservation organization. Half of the participants were told that this fund-raiser would be held "a few days from now" (near future condition), whereas the other half were told it would be held "a few months from now" (distant future condition). The time frame of a few months was selected to ensure that the event was equally relevant (or irrelevant) across the two time conditions. Participants were then presented with a description of the wildlife organization. Construal level was manipulated by presenting this organization as dedicated to protecting a specific killer whale, named Simoon (low-level condition), or orcas in general (high-level condition). Participants were then presented with a series of eight strong vs. weak arguments as to why they should support this organization's conservation efforts. The extremity of endorsement served as a manipulation of argument strength. Thus, half of the participants were presented with arguments that strongly endorsed the fund-raiser (e.g., "100% of your financial donation goes toward helping orcas [Simoon]"), whereas the other half were presented with arguments that moderately to poorly endorsed it (e.g., "55% of your financial donation goes toward helping orcas [Simoon]"). To measure participants' attitudes toward the wildlife organization, participants were then asked to indicate how much (in dollars) they would be willing to donate. After completing some demographic items, participants were debriefed and dismissed.

Results and discussion

A base-10 logarithmic transformation was used to adjust for excessive positive skew in the amount of dollars participants were willing to donate to the wildlife organization. For ease of interpretation, all descriptive statistics are presented in their raw dollar amounts. Analyses using raw vs. logged dollar amounts produced similar results. These data were analyzed using a 2 (time: near vs. distant future) \times 2 (argument level: exemplar vs. category) \times 2 (argument strength: weak vs. strong) between-subjects ANOVA. As predicted, there was a significant main effect of argument strength, $F(1, 195) = 4.42, p = .04, r = .15$. Those presented with strong arguments were willing to donate more ($M = \$24.57, SD = \40.34) than those

presented with weak arguments ($M = \$14.35$, $SD = \$22.09$). There was also a marginally significant effect of time, $F(1, 195) = 3.25$, $p = .07$, $r = .13$, such that participants were willing to donate more in the distant ($M = \$23.92$, $SD = \$39.95$) vs. near future ($M = \14.98, $SD = \$23.05$).

Critically, there was the predicted three-way interaction between time, argument level, and argument strength, $F(1, 195) = 4.16$, $p = .04$, $r = .15$ (see Fig. 3). In the near future, participants were more sensitive to argument strength when the argument referred to an exemplar, $F(1, 195) = 3.08$, $p = .08$, $r = .12$, rather than a category, $F(1, 195) = .79$, $p = .38$, $r = .06$. In contrast, in the distant future, they were more sensitive to argument strength when the argument referred to a category, $F(1, 195) = 5.55$, $p = .02$, $r = .17$, rather than an exemplar, $F(1, 195) = .64$, $p = .42$, $r = .06$. As predicted, then, when a person's mental construal of an object changes as a function of time, arguments that highlight information that matches or is consistent with that construal receive preferential attention in evaluation. These findings suggest that temporal distance effects on persuasion result from changes in attention to high- vs. low-level information.

Although the analyses above indicate that there was greater sensitivity to argument strength when arguments matched vs. mismatched temporal construal, it is not clear whether this resulted from strong arguments leading to more positive attitudes or weak arguments leading to more negative attitudes in the matched (vs. mismatched) conditions. To address this question, we recoded the data to

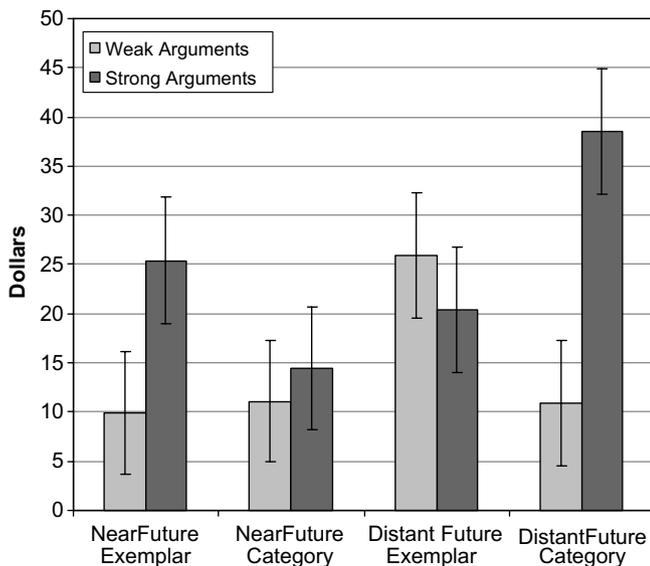


Fig. 3. Amount in raw dollars participants were willing to donate by temporal distance, argument level, and argument strength (Study 3). Participants' attitudes were more sensitive to argument strength when there was a match (two right-most and left-most bars: near future and exemplar information, distant future and category information) vs. mismatch (middle four bars: near future and category information, distant future and exemplar information). Error bars depict plus or minus one standard error.

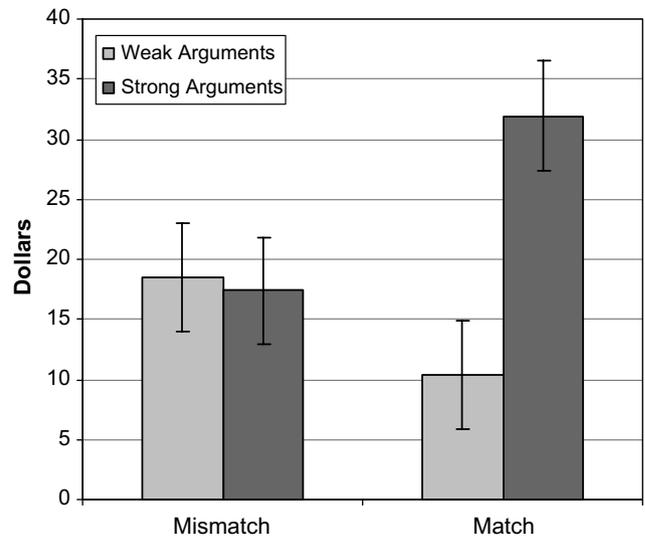


Fig. 4. Amount in raw dollars participants were willing to donate by argument strength and match, collapsing across time and argument level (Study 3). Participants' attitudes were more sensitive to differences in argument strength when there was a match between temporal construal and argument level. Error bars depict plus or minus one standard error.

reflect matches (distant future and category information, near future and exemplar information) and mismatches (distant future and exemplar information, near future and category information) between temporal construal and argument level. The data (log-transformed) were then analyzed with a 2 (match: match vs. mismatch) \times 2 (argument strength: weak vs. strong) between-subjects ANOVA.⁶ Paralleling results already described above, there was a main effect of argument strength, $F(1, 199) = 4.62$, $p = .03$, $r = .15$. More importantly, however, there was a significant interaction between argument strength and match, $F(1, 199) = 4.10$, $p = .04$, $r = .14$ (see Fig. 4). Strong arguments led participants to donate more when presented with matching vs. mismatching arguments, $F(1, 195) = 1.96$, $p = .16$, $r = .10$, whereas weak arguments led them to donate less, $F(1, 195) = 2.16$, $p = .14$, $r = .10$. Although these results are not statistically significant by traditional standards, they do suggest an intriguing possibility. Arguments that match in temporal construal do not necessitate greater positive attitude change. Although attitudes become more positive when arguments are strong, preferential attention to the matching information may lead to more negative attitudes when arguments are weak. We elaborate on this point further in the General Discussion. It is important to note, however, that this pattern of data is still entirely consistent with the notion that increasing distance leads to preferential attention to high- vs. low-level information.

This study also extends previous work on the impact of specific exemplars vs. superordinate categories on persua-

⁶ These data are collapsed across time and level, as the respective three-way interactions were not statistically significant (F 's < 1.30).

sion. Previous findings have suggested that highlighting specific exemplars is more conducive to attitude change than general categories (e.g., Sherman, Beike, & Ryalls, 1999). For example, people are more willing to donate money to save a few beached whales than saving whales more generally. The results of Study 3, however, suggest that the temporal distance of the attitude object may moderate these effects. With distant future events, given strong arguments, messages that stressed a superordinate category vs. subordinate exemplar led to greater attitude change, $F(1, 195) = 2.76, p = .10, r = .12$. Temporal distance, therefore, may be an important moderator for previously established research on the use of exemplars vs. categories in persuasive arguments.

General discussion

We proposed that temporal distance changes how an attitude object is understood, i.e., what features are made accessible and relevant in evaluation (e.g., Eagly & Chaiken, 1993), and thus influence the success of certain persuasive appeals. Drawing from construal level theory (Liberman et al., 2002; Trope & Liberman, 2003; Trope et al., 2007), we hypothesized that increasing the temporal distance of attitude objects would promote the activation of high-level construals, which in turn would lead individuals to preferentially attend to arguments emphasizing high-level features. That is, given strong arguments, those stressing high- vs. low-level features should be more persuasive for attitude objects in the distant vs. near future. Supporting this hypothesis, in Study 1, arguments appealing to primary, goal-relevant features of classes were more persuasive than those appealing to secondary, goal-irrelevant features when the classes were in the distant vs. near future. Study 2 extended these results by demonstrating that a message highlighting a desirability (ends-related) feature vs. feasibility (means-related) feature was more persuasive for a distant vs. near future product.

Study 3 extended the findings from the first two studies by examining the underlying process by which temporal distance influences the impact of high- vs. low-level information on attitude change. Participants' attitudes toward temporally distant vs. near events were more sensitive to changes in argument strength when they referred to general (high-level) vs. specific (low-level) attitude objects. This suggests that increasing temporal distance leads to greater attention to high- vs. low-level information. Together with Studies 1 and 2, these findings support the hypothesis that time influences persuasion through changes in the weighting of high- vs. low-level features.

A note is warranted about the absence of a cross-over interaction in the data, particularly in Studies 1 and 2. In these two studies, we found that increasing temporal distance led to greater persuasion given strong high- vs. low-level arguments. We did not, however, find that low-level arguments are more persuasive than high-level arguments for temporally near objects. Construal level theory

predicts that the relative impact of high- vs. low-level features increases as a function of temporal distance, but is silent with respect to the actual magnitude of the difference. For example, in Study 1, it is reasonable to suggest that primary features dominate evaluation. These features represent the central, goal-relevant motivations for enrolling in a course, and thus normatively should receive fairly high attention in evaluation. Indeed, results reflected this, as primary features led to positive attitudes across both time conditions. The lack of a cross-over interaction in Study 2 may similarly be attributed to the dominance of desirability vs. feasibility concerns in evaluation. Previous research has demonstrated that people consider feasibility concerns to be subordinate to desirability concerns, considering feasibility concerns only after desirability concerns have been addressed (Sagristano et al., 2002). The specific pattern of the data may thus be partly dependent on the materials used. In both studies, the high-level features in general may have been preferentially attended to than low-level features. What is important to note about these data, however, is not the actual magnitude of the difference, but rather the relative impact of high- and low-level features in evaluation as a function of temporal distance.

Relation to dual-process models

It is important to distinguish the findings in the three studies reported in this paper from previous work on time in the context of dual-process models of attitude change (e.g., Chaiken et al., 1996; Petty & Cacioppo, 1986). As described earlier, time has been used by many researchers of dual-process models as a manipulation of personal relevance. This previous work has suggested that when temporal distance is used as a manipulation of personal relevance, increasing temporal distance is associated with decreased systematic, elaborative processing. The present construal level analysis proposes that time can have an independent effect on persuasion through changes in mental construal that is distinct from personal relevance. The studies reported here suggest that when strong arguments highlight features that are preferentially weighted by one level of construal over the other as a function of temporal distance, there is greater attitude change. Moreover, as shown in Study 3, greater temporal distance can lead to increased rather than decreased scrutiny of message arguments under specific conditions. That is, there is greater sensitivity to argument strength when the message arguments of a temporally distant object refer to high-level rather than low-level features. Although increasing temporal distance generally decreases message scrutiny via changes in personal relevance, time may exert an additional independent effect on attitude change through mental construal.

The present studies serve not only to distinguish personal relevance from temporal construal, they also demonstrate empirically the conceptual independence of high- vs. low-level construals and effortful vs. non-effortful

processing modes. The results from Study 3 in particular suggest that effortful processing can be associated with both high- and low-level construals under certain conditions. Low-level construals promoted scrutiny of exemplar-based information, whereas high-level construals promoted scrutiny of category-based information. That both high- and low-level construals are associated with effortful processing suggests that levels of construal are indeed distinct and independent of dual processing modes (see also Smith & Trope, 2006; Wakslak, Trope, Liberman, & Alony, 2006).

Matching mechanisms

An important caveat is necessary to mention with respect to interpreting these studies. Throughout this paper, we have argued that increasing temporal distance leads to preferential attention to arguments that stress high- vs. low-level features. In turn, we have suggested, arguments that stress high-level features lead to greater attitude change. As noted in Footnote 1, this interpretation of our findings assumes that the arguments people receive are strong ones, those that lead to positive thoughts about the attitude objects. This assumption is a fairly reasonable one as persuasive appeals are generally made in the strongest possible manner to exert maximal impact on attitude change. Indeed, in Studies 1 and 2, we purposefully constructed the strongest arguments we could to maximize impact on attitudes. However, given weak arguments, attention to high- vs. low-level features as a function of increasing temporal distance could lead to less attitude change. That is, when people preferentially attend to weak arguments, they may notice the weaknesses of the argument and be less persuaded. Indeed, there was some evidence of this in the results of Study 3 where we manipulated the strength of the arguments.

That there is greater attention to and scrutiny of messages that match vs. mismatch in temporal construal parallels other findings in persuasion research. As noted earlier, there is extensive research in “functional matching” demonstrating enhanced attitude change when message arguments address the underlying function of the recipients’ attitudes (DeBono, 1987; Katz, 1960; Snyder & DeBono, 1985). Increased message scrutiny of matching arguments is one of several documented mechanisms by which the functional matching effect occurs (e.g., Petty & Wegener, 1998; Updegraff et al., 2007; Wheeler et al., 2005). It stands to note, however, that the functional matching literature also suggests that construals may impact attitude change through alternate mechanisms other than enhanced sensitivity to argument strength. In the studies reported here, participants presumably had sufficient cognitive resources to process and could distinguish strong vs. weak arguments. However, under conditions of reduced capacity, such as states of cognitive load, preferential attention to high- vs. low-level features might impact attitude change more directly. That is, mere mention of high- vs. low-level features, regardless of argument strength, might lead to

greater persuasion. In such conditions, the number of high- vs. low-level features in an argument, irrespective of strength, could serve as a cue or heuristic as to the validity of the message thus leading to attitude change (Lavine & Snyder, 1996). An additional mechanism might be through biased elaborative processing. That is, even when individuals are elaboratively processing information, this elaboration can be biased in a particular direction. Matching temporal construal to argument level could lead people to bias their elaborative thinking in favor of the arguments (Chaiken & Maheswaran, 1994; Petty, Schumann, Richman, & Strathman, 1993). Thus, although Study 3 demonstrated that one possible mechanism for the effect of construals on persuasion is through enhanced sensitivity to the strength of arguments, these other mechanisms suggested by the functional matching literature are possible as well and await future empirical validation.

Beyond the mechanisms of matching, the results of the present studies suggest that temporal distance may influence the underlying function of attitudes. The results of Study 2, for example, suggest that arguments that speak to desirability relative to feasibility concerns are more persuasive in the distant future. Desirability and feasibility concerns are conceptually similar to value-expressive and utilitarian functions of attitudes (e.g., Katz, 1960). Although research has indicated matching arguments to these functions enhances attitude change (Clary et al., 1998), it is important to note that temporal distance may influence which functions are dominant (Eyal et al., submitted for publication; Liberman & Trope, 1998; Sagristano, Eyal, Trope, Liberman, & Chaiken, 2007; Sagristano et al., 2002). This, in turn, may moderate the functional matching effect. Future research might address this question and other ways in which temporal construals might impact attitude change.

Beyond time

The effects of construal on persuasion are not necessarily limited solely to temporal distance. Construal level theory (Liberman et al., 2007; Trope & Liberman, 2003; Trope et al., 2007) suggests that temporal distance represents only one dimension of a broader class of psychological distances. These other dimensions, such as space, social distance, and hypotheticality, are theorized to have analogous effects to temporal distance on mental representation and judgment. For example, research has shown that just as increasing temporal distance leads to more abstract representation of objects and events (Liberman et al., 2002), so too does spatial distance (Fujita, Henderson, Eng, Trope, & Liberman, 2006; Henderson, Fujita, Trope, & Liberman, 2006), social distance (e.g., Fiedler, Semin, Finkenauer, & Berkel, 1995; Idson & Mischel, 2001; Linville, Fischer, & Yoon, 1996; Nisbett, Caputo, Legant, & Marecek, 1973; Smith & Trope, 2006), and hypotheticality (Todorov, Goren, & Trope, 2007; Wakslak et al., 2006). This suggests that other dimensions of psychological distance may impact persuasion and attitude change in a sim-

ilar fashion to temporal distance. For example, strong arguments stressing high-level features are more likely to be persuasive for products that are produced in a spatially distant location (such as a foreign country) than those produced in a near location (such as a nearby town). As another example, people may preferentially emphasize desirability over feasibility when advising other people than when making decisions for themselves (i.e., when social distance of the decision object is high vs. low).

The generalizability of these findings to other dimensions of distance is important to note, as other research on personal relevance and attitude change has manipulated personal relevance with operationalizations that vary the social and spatial distance of attitude objects (e.g. Petty & Cacioppo, 1979; Petty, Cacioppo, & Schuman, 1983). As with time, these other dimensions of psychological distance may exert an effect that is independent of personal relevance—i.e., through mental construal. This does not mean that personal relevance effects are driven by psychological distance; rather, psychological distance may exert an effect on persuasion independently through changes in mental construal as well as through changes in personal relevance. Further systematic study of psychological distance effects on persuasion and attitude change beyond temporal distance promises to be fruitful line of research complementary to that of personal relevance.

Mental construals may also impact attitude change in the absence of psychological distance manipulations. Research has suggested that there are individual differences in the tendency to utilize high or low-level construals, and that such differences systematically predict construal-dependent judgment and choice (Freitas, Salovey, & Liberman, 2001; Levi, Freitas, & Salovey, 2002; Vallacher & Wegner, 1989). Construal levels, moreover, can be primed as a mindset, activated by prior contexts and carry over to subsequent unrelated situations (Freitas, Gollwitzer, & Trope, 2004; Fujita, Trope, et al., 2006). For example, research has demonstrated that generating superordinate category labels (e.g., “animals”) vs. subordinate exemplars (e.g., “poodle”) for a series of everyday objects (e.g., “dog”) led people to identify subsequent unrelated actions in terms of superordinate end-states vs. subordinate means (Fujita, Trope, et al., 2006). Moreover, people who generated superordinate category labels also preferentially weighted high- vs. low-level concerns in subsequent unrelated preferences and decisions. Chronically and situationally induced tendencies to construe attitude objects at high or low-levels should thus have analogous effects as temporal distance, and promises new avenues of both applied and basic research in persuasion.

Conclusion

The research presented in this paper was inspired by the question of whether temporal distance of an attitude object influenced persuasion processes. The results from three studies we report answer this question affirmatively, dem-

onstrating that people preferentially attend to arguments that highlight high- vs. low-level features when attitude objects are temporally distant vs. near. More broadly, these findings suggest that psychological distance may play an important role in attitude formation and change.

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