Psychological Distance and Subjective Experience: How Distancing Reduces the Feeling of Difficulty

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Psychological distance can reduce the subjective experience of difficulty caused by task complexity and task anxiety. Four experiments were conducted to test several related hypotheses. Psychological distance was altered by activating a construal mind-set and by varying bodily distance from a given task. Activating an abstract mind-set reduced the feeling of difficulty. A direct manipulation of distance from the task produced the same effect: participants found the task to be less difficult when they distanced themselves from the task by leaning back in their seats. The experiments not only identify psychological distance as a hitherto unexplored but ubiquitous determinant of task difficulty but also identify bodily distance as an antecedent of psychological distance.

Consumers often experience difficulty when making judgments and deciding whether to purchase goods and services. Except when they are making habitual purchases, consumers do not always have an easy time deciding, for example, which computer to buy, where to send their children to school, or where to take their family for vacation. Such a feeling of difficulty is highly influential in, and sometimes detrimental to, consumers' judgments, decisions, and behavior. For example, when it is difficult to choose between products, consumers are less satisfied with their choices (Botti and Iyengar 2004; Griffin and Broniarczyk 2010; Thompson, Hamilton, and Petrova 2009), they have less confidence in their choices (Tsai and McGill 2011), they tend to defer their choices and prolong their searches (Dhar 1996, 1997; Garbarino and Edell 1997; Greenleaf and Lehmann 1995; Luce 1998), and they adapt their judgment strategy to avoid making trade-offs (Levav, Kivetz, and Cho 2010; Payne, Bettman, and Johnson 1993) or cope with negative feelings arising from making the trade-offs (Luce, Payne, and Bettman 1999). The present research is an attempt to better understand the psychology of the feeling of difficulty by identifying a hitherto unexplored, but possibly ubiquitous, determinant: psychological distance.

The present research advances the literature on the psychology of the feeling of difficulty in two ways. First, we propose that psychological distance is an important determinant of the subjective feeling of difficulty: the more psychologically distant choices and judgments are, the less difficult they feel. The extant literature defines psychological distance as "the different ways in which an object might be removed from" the self along dimensions such as "time, space, social distance, and hypotheticality" (Trope and Liberman 2010, 440). Our conceptualization builds on the finding that people can psychologically distance themselves from tasks, events, and objects (Agrawal and Wan 2009; Deval et al. 2010; Kardes, Cronley, and Kim 2006; Kyung, Menon, and Trope 2010; Trope and Liberman 2003, 2010) and on the finding that psychological distance can reduce the intensity of negative feelings (Ayduk and Kross 2008, 2009; Kross, Ayduk, and Mischel 2005; Van Boven et al. 2010). Based on these findings,

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we suggest that increasing psychological distance between the self and complex tasks can reduce feeling of difficulty.

Second, building on recent advances in embodied cognition literature, we identify a novel and more direct antecedent of psychological distance—bodily distance. Previous research has identified several distinct antecedents of psychological distance, including social distance, temporal distance, geographical distance, and hypotheticality (Trope and Liberman 2010). However, all these antecedents are indirect determinants of distance. To distance themselves from a task psychologically, people have to think more abstractly, adopt a third-person perspective, imagine making a decision for the distant future, or describe the judgment task as hypothetical. We show that changing bodily distance by assuming a certain bodily posture—by leaning away or leaning toward the task—can influence psychological distance.

THE SUBJECTIVE EXPERIENCE OF DIFFICULTY

We consider the feeling of difficulty to be a type of metacognitive experience. Although metacognitive experiences are not intense emotions, they are considered feelings because they have an experiential component (Clore 1992; Pham, Cohen, and Andrade 2008; Schwarz and Clore 2007; Strack 1992). For example, the term "feeling" has been used to describe metacognitive experiences such as "feeling of knowing" (Koriat 2000) and "feeling of familiarity" (Whittlesea and Williams 2000). It is in this spirit that we use the term "feeling of difficulty" or "sense of difficulty" to describe the focal construct in this article. To illustrate with examples, pronouncing a complex string of letters (e.g., MEUNSTAH) feels more difficult than pronouncing a simple word (e.g., STATION; Whittlesea and Williams 2000). Solving complex arithmetic problems feels more difficult, and this feeling can influence magnitude judgments (Thomas and Morwitz 2009). A complex choice feels difficult and thus reduces choice confidence (Luce, Jia, and Fischer 2003). Our objective is to investigate how psychological distance affects the feeling of difficulty elicited by complex mental tasks.

Extant Research

Although there is a rich literature on decision difficulty, extant research has not systematically examined the effect of psychological distance on decision difficulty. We are aware of only one research article that suggests that it might. Thompson and colleagues (2009) show that processing style, a factor unrelated to judgment targets, can influence decision difficulty. They demonstrate specifically that, whereas outcome-oriented thinking reduces choice deferral, process-oriented thinking increases choice deferral. They suggest that process orientation directs attention to both outcome benefits and the means (the concrete step-by-step process required for achieving the outcome) and thus increases the extent to which consumers face substantive trade-offs between the (outcome-related) desirability aspects and the (process-related) feasibility aspects of their options. Outcome orientation, however, directs attention away from the means to outcome benefits, thereby reducing choice difficulty and thus choice deferral.

The present research differs from the work of Thompson et al. (2009) in two ways. First, we examine the role of psychological distance in the subjective feeling of difficulty experienced during judgment. In particular, while Thompson et al. focus on how processing style leads to differential weighting of feasibility and desirability considerations, which can influence choice difficulty, we propose that distancing from the task can reduce the subjective experience of difficulty. We demonstrate that this effect of psychological distance operates independently of the differential weighting account. We propose that this distancing effect can manifest even for tasks such as reading aloud meaningless strings of letters where there is not much scope for deliberative thinking about the trade-offs between desirability and feasibility. Furthermore, we show that distance manipulations that do not entail thinking about desirability and feasibility—bodily distancing from a task—can cause this effect. Second, we delineate when and why psychological distance mitigates task difficulty. We propose that psychological distance mitigates difficulty only when the task induces negative feelings during judgments.

Psychological Distance and the Feeling of Difficulty: A Bidirectional Relationship

A Feeling of Difficulty Reduces Psychological Distance. A burgeoning body of literature suggests that task difficulty as well as other types of negative feelings can reduce psychological distance. Vallacher and Wegner (1987) argue that when a task is difficult, people tend to adopt a low-level concrete construal of the task. Specifically, their results (Vallacher and Wegner 1987, table 3) suggest that greater task difficulty, task complexity, and enactment time lead to a more concrete construal of the task. From the perspective of construal level theory, this finding suggests that task difficulty reduces the psychological distance between the doer and the task. Explicating the relationship between psychological distance and construal level, Trope and Liberman (2010, 441) state that "people use increasingly higher levels of construal to represent an object as the psychological distance from the object increases. This is because high-level construals are more likely than low-level construals to remain unchanged as one gets closer to an object or farther away from it." Therefore, the two theories, Vallacher and Wegner's (1987) Action Identification Theory and Trope and Liberman's (2010) Construal Level Theory, together suggest that when a task is difficult, people tend to mentally zoom in to gain a closer perspective to the task.

Van Boven and colleagues (2010) suggest that this relationship manifests not only for the feeling of difficulty but also for other types of feelings. They found that describing an event emotionally (as opposed to unemotionally) reduced the psychological distance between the self and the event. In one of their experiments, participants were asked to describe a dentist visit in either an emotionally involved manner or an unemotional manner. The researchers observed that those participants who described the dentist visit unemotionally reported that they felt more distant from the visit.

Bidirectional Relationship. This literature offers the foundation on which we develop our main hypothesis. If people see a correlation between subjective feelings and psychological distance (Vallacher and Wegner 1987; Van Boven et al. 2010), they might use psychological distance to infer a feeling of difficulty. That is, increasing the psychological distance from a complex task might reduce the feeling of difficulty. This assumption of reverse inference is consistent with findings in the general area of bidirectional inferential strategy (Kahneman and Frederick 2002; Wyer and Srull 1989). For example, Wyer and Srull (1989, 281) postulate that "subjects who infer that a stimulus condition implies another (that X implies Y) will also believe that the second implies the first (that Y implies X) and, therefore, will infer X from the existence of Y." Based on this premise, we propose that when a task is construed from a distant perspective, the mind spontaneously infers that the task is less difficult. Conversely, when a task is construed from a proximal perspective, the mind infers that the task is more difficult.

Research by Ayduk and Kross (2008) and Kross et al. (2005) offers preliminary support for our proposition, although this line of research did not examine the feeling of difficulty. Kross et al. (2005) demonstrated that explicitly instructing participants to adopt a self-distanced perspective (e.g., "take a few steps back and move away from your experience . . . watch the conflict unfold as if it were happening all over again to the *distant* you"; Kross et al. 2005) reduced negative feelings associated with past experiences. Similarly, Ayduk and Kross (2008) have shown that the same manipulation of self-distanced perspective affected blood pressure. They found that blood pressure reactivity was minimal when participants adopted a self-distanced perspective in analyzing their emotions. Based on these results, we hypothesize that psychologically distancing a person from a task will mitigate the feeling of difficulty arising from task complexity. Next, we consider how people can psychologically distance themselves from tasks. We consider two antecedents of psychological distance—abstract mind-set and bodily distance.

Antecedents of Psychological Distance

Abstract versus Concrete Mind-Sets. It has been shown that abstract construal can increase psychological distance. For example, Fujita at al. (2006) showed that when people are primed to think of abstract categories of objects (e.g., "beverage" as a more abstract representation of "soda"), they are more likely to focus on distant goals. On the other hand, when people are primed to consider concrete exemplars of the same objects (e.g., "Coke" as an example of "soda"), they focus on the immediate goal. In a similar vein, thinking about a task abstractly (e.g., making a list is getting organized) can lead to self-distancing from the task, and thinking about the same task concretely (e.g., making a list is writing things down) can increase psychological proximity to the task (Trope and Liberman 2010). This stream of the literature posits that the activation of an abstract mind-set will increase psychological distance from the task.

Bodily Distance. Building on the emerging literature on embodied cognition (Barsalou 2010; Niedenthal 2007), we identify a novel and more direct antecedent of psychological distance: bodily distance from a task. The literature on embodied cognition has shown that high-level cognitive processes such as thought and judgment are influenced by sensory, motor, and affective systems (Barsalou 2010; Niedenthal 2007). Based on this literature, we propose that altering bodily distance from the judgment target by leaning forward or leaning backward from the task will also alter the psychological distance from the task. In particular, we hypothesize that physically leaning away from the judgment target will increase psychological distance from it and reduce the feeling of difficulty. The preceding discussion leads us to the following two formal hypotheses:

H1a: Activating an abstract mind-set will increase psychological distance and reduce the feeling of difficulty that consumers experience when they perform subsequent, unrelated complex tasks.

H1b: Assuming a bodily posture that increases bodily distance from judgment tasks will increase psychological distance and have the same effect on task difficulty as described in hypothesis 1a.

Alternative Account and Moderators

It is possible that the proposed effect of psychological distance is due to a scaling effect. Maglio and Trope (2010) have shown that construal level can change the mental scale that people use to measure and report the length or size of target objects. Applying this finding to the context of the feeling of difficulty, one may argue that psychological distance might induce people to use larger measuring units, thereby reducing their rating of difficulty. This scaling account predicts that there will be a main effect of psychological distance: all tasks would be rated as less difficult from a distant perspective. We rule out the scaling account by identifying two moderators of the proposed effect that are consistent with our distancing account but not with the scaling account. These moderators are task complexity and task anxiety.

Task Complexity. If the proposed effect of psychological distance is caused by changes in the mental scale used to measure difficulty, then the effect should manifest for simple tasks as well as complex ones. In contrast, our account posits that psychological distance will matter for complex tasks but not for simple ones. Unlike complex tasks, simple tasks do not elicit a feeling of difficulty. As a result, psychological distance will not affect assessments of difficulty for simple tasks. To illustrate the moderating effect of task complexity, we invite readers to try to read aloud the following two strings of letters, carefully attending to the feeling of difficulty elicited by each stimulus: HENSION and MEUNSTAH. The second stimulus has more syllables and a more complex syllable structure. Therefore, the second stimulus generally requires greater cognitive effort and feels more difficult to pronounce than the first stimulus does. We posit that psychological distance from the task will reduce this feeling of difficulty. In contrast, the first stimulus is much simpler and is less likely to elicit a feeling of difficulty. Consequently, whether one is psychologically distant or proximal to the task would not change the feeling of difficulty. More formally:

> **H2:** Psychological distance will reduce the feeling of difficulty experienced during a cognitive task when the task is complex but not when the task is simple.

Task Anxiety. Some people may feel anxious when they have to choose which computer or which camera to buy, while others do not break into a sweat. An individual's dispositional anxiety toward a task can also affect the feeling of difficulty. Since anxious individuals experience stronger negative feelings (Beck, Emery, and Greenberg 2005), task anxiety can increase the feeling of difficulty. For example, a person who is chronically anxious about his linguistic skills should experience intense negative feelings when asked to read complex strings of letters aloud. A person who is chronically anxious about her technology skills should experience intense negative feelings when asked to choose between two computers. (Note that we consider task anxiety to be a chronic individual difference measure that is task specific. A person who is anxious about her technology skills might not be anxious about her linguistic skills.) Our conceptualization predicts that the mitigating effect of psychological distance is more likely to manifest in people with higher task-specific anxiety. However, thinking abstractly or merely leaning away from the task can mitigate the feeling of difficulty caused by task anxiety. We therefore hypothesize as follows:

> **H3a:** Chronic task anxiety will increase the feeling of difficulty caused by complex tasks.

> **H3b:** Psychological distance (caused by bodily distancing or abstract mind-set) will reduce the effect of task anxiety on the feeling of difficulty.

We report on four studies designed to test our hypotheses. Since we focus on the experiential component of difficulty, we begin by demonstrating the effect of psychological distance on metacognitive experiences (studies 1A and 1B) and then examine an important downstream consequence: whether psychological distance reduces choice difficulty and thus reduces choice deferral (studies 2 and 3).

OVERVIEW OF STUDIES 1A AND 1B

To obtain evidence for the role of metacognitive experiences, in studies 1A and 1B we used a standard experimental paradigm for investigating metacognitive experiences—pronouncing fluent and disfluent strings of letters (Whittlesea, Jacoby, and Girard 1990; Whittlesea and Williams 2000). We asked participants to pronounce meaningless strings of letters that varied in their pronunciation complexity. This task is relevant to consumer decision making because prior research has shown that the ease/difficulty with which brands or company names can be pronounced systematically influences, for example, the perceived risk and perceived quality of the products (Song and Schwarz 2009) and predictions about stock performance (Alter and Oppenheimer 2006). Furthermore, in these studies we use meaningless strings of letters as stimuli to demonstrate that the postulated effect is caused by psychological distance rather than by potential differential weighting of desirability and feasibility of attributes. We predicted that even in such an elemental task that does not involve any trade-off between desirability and feasibility of attributes, psychological distance would reduce the feeling of difficulty that participants experience when they pronounce complex stimuli.

STUDY 1A: ABSTRACT MIND-SET REDUCES DIFFICULTY

To test hypothesis 1a we manipulated psychological distance by priming abstract and concrete mind-sets using the word-generation procedure popularized by Fujita at al. (2006). Drawing on extant research that shows that construal level operates at the level of mind-set (Trope and Liberman 2010; Tsai and McGill 2011; Tsai and Thomas 2011), we assume that an abstract construal mind-set when activated in one situation can influence assessment of task difficulty in a subsequent, unrelated context. We also tested hypothesis 2 by manipulating stimulus complexity. Additionally, we tested hypotheses 3a and 3b by measuring individual differences in task anxiety (i.e., the anxiety about the pronouncing task) and treating it as a third independent variable in our analyses. We predicted that task complexity and task anxiety would interactively increase pronunciation difficulty and that psychological distancing would mitigate this effect.

Finally, we ruled out effort as an alternative explanation by measuring response time. One could argue that the proposed difficulty mitigation effect is caused by lower effort put forth during judgment when judgment tasks feel distant. If this is the case, the activation of an abstract mind-set should reduce the time spent on performing the task. If the activation of construal mind-set does not alter effort, however, then we should observe no difference in response time.

Method

Participants, Design, Stimuli, and Procedure. Students at Cornell University participated in this computerized study ($N = 104$) and received \$5. The study employed a 2 (construal mind-set: abstract vs. concrete) $\times$ 3 (stimulus complexity:

complex nonwords, simple nonwords, simple words) × 12 (replicates) mixed factorial design, with stimulus complexity and replicates as within-subjects factors and construal mind-set as a between-subjects factor. Additionally, we measured individual differences in task anxiety as a continuous variable. This study consisted of two ostensibly unrelated tasks—a word-generation task and a pronunciation task. The first task was used to activate construal mind-set, and the second was the main test, in which we measured the effect of construal mind-set on assessment of task difficulty. Participants were randomly assigned to either the abstract or concrete construal mind-set condition.

Word-Generation Task. To manipulate psychological distance, we used a word-generation task that has been used successfully to induce abstract and concrete construal (Fujita et al. 2006). Participants viewed 39 words, such as "Soda," "Computer," "Newspaper," and "Professor," one at a time on the computer screen. For each target word, participants had to think of a related word and enter it into an open-ended response box using the keyboard. Those assigned to the abstract condition were instructed to generate a superordinate category label for each word by answering the question, "_________ is an example of what?" Those in the concrete condition were instructed to generate a subordinate exemplar for each word by answering the question, "An example of __________ is what?" After they completed this task, participants were thanked and asked to proceed to the main test, the pronunciation task.

Pronunciation Task. In the main test, participants had to pronounce 36 strings of letters and rate the difficulty of pronouncing them. The stimuli included 12 orthographically irregular (complex) nonwords that are difficult to pronounce (e.g., MEUNSTAH), 12 orthographically regular (simple) nonwords that are easy to pronounce (e.g., HENSION), and 12 normal (simple) words that are easy to pronounce (e.g., STATION). The stimuli used in the task, adapted from Whittlesea and Williams (2000), are listed in the appendix.

Participants were shown one stimulus at a time. The stimuli were presented in a random order determined by the computer program. For each stimulus, we asked participants to read it aloud in a soft tone and then report the feeling of difficulty experienced when pronouncing it. Every participant wore a headphone during the study to avoid being disturbed when other participants read the words aloud. Each stimulus was displayed in the center of the screen, and below it was a 7-point unmarked scale anchored at "difficult" on the far left and "easy" on the far right. Responses were coded as -3 and 3 for "difficult" and "easy," respectively. The computer unobtrusively recorded the response time for each stimulus.

Task Anxiety. We subsequently measured the individual differences in dispositional anxiety associated with the letter pronunciation task. On a 7-point unmarked scale, participants reported the extent to which they agreed with two statements: "I feel 'anxious' [or 'nervous' for the second statement] about reading aloud unfamiliar words in a public place" (left anchor: strongly disagree; right anchor: strongly agree). To ensure that the measures effectively captured their dispositional task anxiety, we told participants that some people feel very comfortable pronouncing unfamiliar words in public, while others are less comfortable doing so.

Results

Manipulation Check: Abstract Mind-Set. Two judges who were unaware of the condition analyzed each participant's level of construal based on the abstractness of their responses in the word-generation task (data were coded as 1 for abstract responses and -1 for concrete responses). The ratings of the two judges were highly correlated ($r = .99$, $p < .01$) and were averaged to create a single index of abstractness. As expected, the responses from participants who generated category labels were significantly more abstract than were those from the exemplar condition ($M_{abstract} = 36.6$ vs. $M_{concrete} = -35.1$; $F(1, 102) = 2{,}004.9$, $p < .01$).

Individual Difference Measure: Task Anxiety. The two items measuring individual differences in task anxiety were correlated ($r = 0.77$, $p < .01$) and were summed to form an aggregate index of task anxiety. As expected, our construal mind-set manipulation did not affect the individual differences in task anxiety ($F < 1$).

Difficulty Rating. Difficulty rating was submitted to a mixed factorial analysis with stimulus complexity (complex nonwords, simple nonwords, simple words) and replicates (12 levels) as within-subjects factors, construal mind-set (abstract vs. concrete) as a between-subjects factor, and task anxiety as a continuous variable. This and all other mixed factorial analyses reported in this article were done using PROC MIXED in SAS. The main effect of stimulus complexity was significant ($F(2, 204) = 379.3$, $p < .01$). Participants rated the complex nonwords to be more difficult to pronounce ($M = -1.18$) than simple nonwords ($M = 1.51$) and simple words ($M = 2.49$), confirming that our complexity manipulation was successful. Moreover, the two-way interaction between stimulus complexity and task anxiety ($F(2, 3{,}500) = 8.68$, $p < .01$) was significant, suggesting that task anxiety amplified the effect of stimulus complexity. Most important, the three-way interaction between stimulus complexity, task anxiety, and construal mind-set was significant ($F(2, 3{,}500) = 4.44$, $p = .01$). These effects did not vary across the replicates (all $F < 1$).

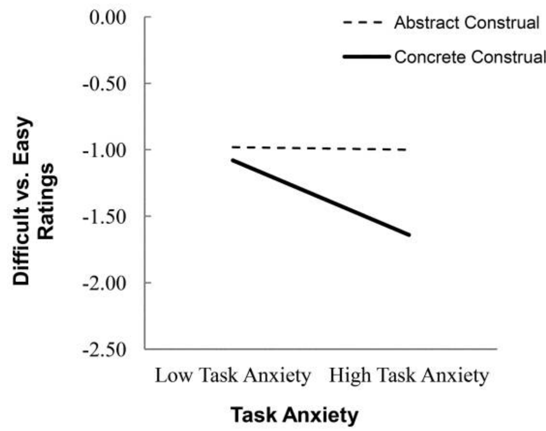
Next, we examined whether abstract construal reduced the effect of stimulus complexity. Table 1 (top panel) depicts the mean values of difficulty ratings for three levels of stimulus complexity across abstract and concrete mind-sets. Simple contrasts revealed that the results were consistent with our hypotheses. Participants in the abstract condition rated the complex nonwords as less difficult to pronounce than did participants in the concrete condition ($M_{abstract} = -.99$ vs. $M_{concrete} = -1.37$; $F(1, 204) = 7.55$, $p < .01$). This result supports our hypothesis that abstract construal reduces task difficulty (hypothesis 1a). Furthermore, the construal mind-set manipulation did not affect difficulty ratings for simple nonwords or simple words (both $F < 1$). Thus, the results ruled out the scaling account and provided support for hypothesis 2, that the abstract construal mind-set matters only when the stimuli elicit a feeling of difficulty.

Then, we tested whether abstract construal reduced the effect of task anxiety. Since task anxiety is a continuous variable, we examined the simple slopes of task anxiety under different conditions (Aiken and West 1991). The repeated-measures regression analysis revealed that, as expected, task anxiety did not affect difficulty ratings of simple stimuli across the abstract and concrete mind-set conditions (both $p > .25$). For complex stimuli, however, we observed that task anxiety amplified the feeling of difficulty in the concrete condition but that this effect was eliminated in the abstract condition. In particular, under the condition of a concrete mind-set, task anxiety was a significant predictor of task difficulty ($\beta = -.17$, $p = .03$); the sign of the coefficient suggests that task anxiety increased the difficulty experienced for complex stimuli. (Note that lower ratings indicate greater difficulty.) However, under the condition of an abstract mind-set, the slope of task anxiety was not significant ($\beta = .01$, $p > .94$). Figure 1 graphically depicts how task anxiety differentially changed the difficulty ratings of complex stimuli under the abstract and concrete mind-set conditions. To confirm our interpretation of the regression results, we dichotomized task anxiety using a median split. The resulting pattern of means was consistent with our interpretation of the regression results. Task anxiety increased the difficulty of pronouncing complex stimuli in a concrete mind-set (low anxiety: $M = -1.08$; high anxiety: $M = -1.63$) but not in an abstract mind-set (low anxiety: $M = -.98$; high anxiety: $M = -1.00$). Thus, hypotheses 3a and 3b are supported.

Confound Check: Response Time. Analysis of logarithmic transformation of the response times, trimmed at three standard deviations from the mean, revealed that only the main effect of stimulus complexity was significant ($F(2, 204) = 3.70$, $p = .02$). Participants took more time for the complex nonwords ($M = 552$ milliseconds) than for simple nonwords ($M = 540$ milliseconds) and simple words ($M = 541$ milliseconds). Importantly, the main effect of construal mind-set and its two-way and three-way interactions with stimulus complexity and task anxiety were not significant (all $F < 1$). These results rule out effort as an alternative explanation and suggest that our construal mind-set manipulation did not alter the effort expended on the task.

FIGURE 1

STUDY 1A: ABSTRACT CONSTRUAL REDUCED THE FEELING OF DIFFICULTY CAUSED BY TASK ANXIETY



NOTE.—Difficulty rating was measured on a 7-point unmarked scale anchored at "difficult" on the far left and "easy" on the far right. Responses were coded as −3 and 3 for "difficult" and "easy," respectively. Higher scores indicate lesser difficulty.

STUDY 1B: BODILY DISTANCE REDUCES DIFFICULTY

We conducted a follow-up study to seek further support for our hypothesis that psychological distance can influence feeling of difficulty. Study 1B was designed to test hypothesis 1b, that physically distancing oneself from a task can serve as an antecedent of psychological distance and thus mitigate the feeling of difficulty. The main task in this study was the same as that in the previous study. However, instead of priming construal

TABLE 1

ABSTRACT MIND-SET (STUDY 1A) AND BODILY DISTANCE (STUDY 1B) HAVE SIMILAR EFFECTS ON TASK DIFFICULTY RATINGS

	Stimulus complexity		
Condition	Complex nonwords	Simple nonwords	Simple words
Study 1A:			
Abstract mind-set	−.99	1.56	2.46
Concrete mind-set	−1.37	1.46	2.53
Difference	.38*	.10	.07
Study 1B:			
Physically distant	−.88	1.62	2.51
Physically proximal	−1.31	1.46	2.41
Difference	.43*	.16	.10

*These between-subjects condition effects were significant at $p < .05$. The other simple contrasts were not significant.

mind-set, we manipulated psychological distance by asking participants to assume a certain body posture that varied the bodily distance from the task (leaning forward toward the computer screen vs. leaning backward away from the screen). As reviewed earlier, we predicted that increasing the distance between self and judgment task would have the same effect as activating an abstract mind-set.

Method

Participants, Design, and Stimuli. Students at Cornell University ($N = 92$) participated in this computerized study and received $5. The stimuli used for the pronunciation task and the dependent variable (task difficulty) were identical to those used in study 1A. We measured task anxiety at the end of the study.

Procedure. Participants were first administered the distance manipulation. All participants were told that research has shown that certain postures are more likely to elicit natural responses from people. Participants were randomly assigned to the proximal and distant conditions. Participants assigned to the proximal condition were instructed to lean forward toward the computer during the experiment, whereas participants assigned to the distant condition were asked to lean backward in their chairs during the experiment. The instructions were accompanied by pictorial representations of the postures (see fig. 2). Participants were instructed to maintain their assigned posture throughout the study so that we could elicit their natural responses. To prevent discomfort and ease of reading the font from being confounding variables, we told participants that they should be no closer to (or farther from) the computer than is comfortable for reading or typing (see instructions in fig. 2). Participants were separated so that they could not observe each other. After reading the instructions, participants assumed the assigned body pose and completed the pronunciation task from study 1A.

Bodily Distance. To confirm that the manipulation of distance worked as intended, participants were asked to indicate whether they were closer to or farther from the computer screen relative to their normal position on an unmarked 7-point scale (“closer” and “farther” as the left and right anchors, coded as 1 and 7, respectively). Then, participants estimated the objective distance in inches between their eyes and the computer screen.

Confound Checks. To rule out alternative accounts, we asked participants to report how difficult it was to maintain the posture and speculate on the purpose of the study. As in the previous experiment, we also measured participants’ response time for pronouncing each stimulus.

Results

Responses from two participants who did not follow the instructions were removed from the analyses.

Manipulation Check: Bodily Distance. A factorial analysis of variance revealed that participants in the proximal condition ($M_{proximal} = 2.34$) indicated that their position was closer to the computer screen than those in the distant condition did ($M_{distant} = 5.98$; $F(1, 86) = 97.8$, $p < .01$). Similarly, the average distance between the participants’ eyes and the computer screen in the proximal condition was 12.5 inches, while it was 38.8 inches in the distant condition ($F(1, 86) = 447.1$, $p < .01$). Neither measure was affected by task anxiety, with both $F < 1$.

Individual Difference: Task Anxiety. As in the previous study, the two task anxiety measures were correlated ($r = .86$, $p < .01$) and were summed to form an aggregate index of task anxiety. As expected, the manipulation of bodily distance did not affect the individual differences in task anxiety ($F < 1$).

Difficulty Rating. Rating of difficulty was submitted to a mixed factorial analysis with stimulus complexity (complex nonwords, simple nonwords, simple words) and replicates (12 levels) as within-subjects factors, bodily distance (distant vs. proximal) as a between-subjects factor, and task anxiety as a continuous variable. The main effect of complexity was significant ($F(2, 176) = 2{,}428.2$, $p < .01$). Participants rated the complex nonwords to be more difficult to pronounce ($M = -1.09$) than simple nonwords ($M = 1.54$) and simple words ($M = 2.47$), confirming that our complexity manipulation was successful. Moreover, the two-way interaction between stimulus complexity and task anxiety ($F(2, 3{,}010) = 29.3$, $p < .01$) was significant, suggesting that task anxiety amplified the effect of stimulus complexity. Most important, the three-way interaction between stimulus complexity, task anxiety, and construal mind-set was significant ($F(2, 3{,}010) = 3.35$, $p = .03$).

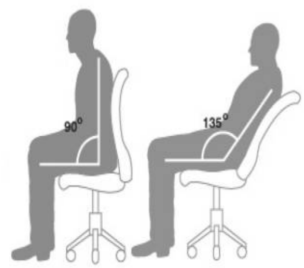
To interpret the three-way interaction, we first examined whether leaning away (bodily distancing) reduced the effect of task complexity. Table 1 (bottom panel) depicts the mean values of difficulty ratings for three levels of stimulus complexity in the distant condition and proximal condition. Participants in the distant condition rated the complex nonwords as less difficult to pronounce than did participants in the proximal condition ($M_{distant} = -0.88$ vs. $M_{proximal} = -1.31$; $F(1, 176) = 7.64$, $p < .01$). Consistent with the previous study’s findings, the distance manipulation did not affect participants’ ratings of the simple nonwords or regular words (both $F < 1$). Thus hypotheses 1b and 2 are supported.

Then, we examined simple slopes of task anxiety to test whether bodily distancing reduced the effect of task anxiety. The analysis revealed that, as expected, task anxiety did not affect the difficulty ratings of simple stimuli in either the distant or the proximal condition (both $p > .17$). For complex stimuli, however, task anxiety was a significant predictor of task difficulty when people leaned toward the screen ($\beta = -.16$, $p < .01$); the sign of the coefficient suggests that task anxiety increased the difficulty experienced for complex stimuli. (Note that lower ratings indicate greater difficulty.) However, when participants leaned away from the task, the effect of task anxiety was weaker ($\beta = -.07$, $p = .05$). Figure 3 graphically depicts how bodily distance from the

FIGURE 2

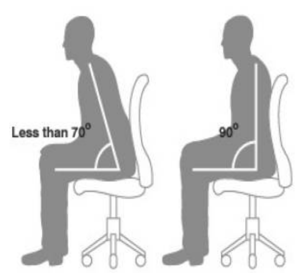
STUDIES 1B AND 3: MANIPULATION OF DISTANCE FROM TASK

INSTRUCTIONS FOR DISTANT CONDITION



Previous research has shown that people are likely to submit their natural responses when they are physically distant from the task. So we would like you to distance yourself from the computer screen to the extent you can. First, lean back on your chair (see picture). Now, please keep your hand on the computer mouse and then push back your chair as far away from the computer as possible. You should not be so far that it is uncomfortable to click the mouse or use the keyboard. Our intention is that you should be far from the task and yet should be able to handle the keyboard and mouse comfortably.

INSTRUCTIONS FOR PROXIMAL CONDITION



Previous research has shown that people are likely to submit their natural responses when they are physically closer to the task. So we would like you to move closer the computer screen to the extent you can. First, lean forward on your chair (see picture). Now, please keep your hand on the computer mouse and then pull your chair as close to the computer as possible. You should not be so close that it is uncomfortable to click the mouse or use the keyboard. Our intention is that you should be close to the task and yet should be able to handle the keyboard and mouse comfortably.

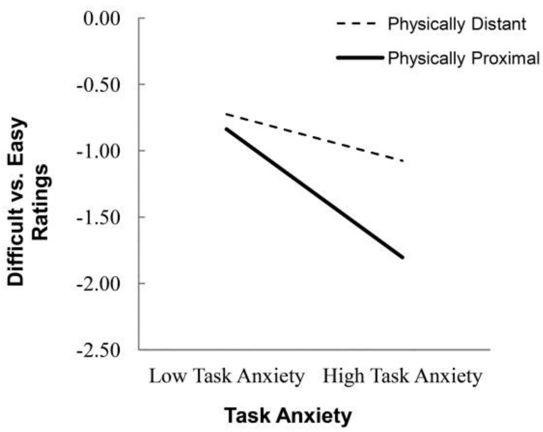
task moderated the effect of task anxiety on the difficulty ratings of complex stimuli. Thus, hypotheses 3a and 3b are supported.

Confound Check: Side Effects of Posture. A factorial analysis of variance revealed that the difficulty of maintaining a body posture did not differ by bodily distance; participants reported that leaning forward was no more difficult than leaning backward was ($M = 3.60$ vs. $M = 3.57$; $F < 1$). Thus, the observed effects cannot be attributed to the difficulty of maintaining the posture. Moreover, analyses of open-ended responses revealed that none of the participants could guess the hypothesized relationship between bodily distance and task difficulty. They believed the cover story that the distance manipulation was intended to elicit their true or natural responses.

Confound Check: Response Time. Logarithmic transforms of response time for each stimulus, trimmed at three standard deviations from the mean, were submitted to a mixed factorial model, with stimulus complexity and replicates as within-subjects factors, bodily distance as a between-subjects factor, and task anxiety as a continuous variable. Only the main effect of complexity was significant ($F(2, 176) = 4.99$, $p < .01$). Participants took more time to respond to complex nonwords (679 milliseconds) than to

FIGURE 3

STUDY 1B: BODILY DISTANCING REDUCED THE FEELING OF DIFFICULTY CAUSED BY TASK ANXIETY



NOTE.—Difficulty rating was measured on a 7-point unmarked scale anchored at "difficult" on the far left and "easy" on the far right. Responses were coded as -3 and 3 for "difficult" and "easy," respectively. Higher scores indicate lesser difficulty.

respond to simple nonwords (634 milliseconds) and simple words (608 milliseconds). Neither the main effect of bodily distance nor any of its interaction effects was significant, with all $F<1$. These results replicate those from study 1A and suggest that the effects of psychological distance cannot be attributed to lesser effort.

Discussion

Results from studies 1A and 1B offer support for the proposition that psychological distance reduces the feeling of difficulty. The results show that psychological distance induced by an abstract mind-set (study 1A) and by leaning away from a task (study 1B) reduces the feeling of difficulty. Although studies 1A and 1B used different procedures to manipulate psychological distance, the results from these studies are remarkably similar for the effects of task complexity (compare the top and bottom panels of table 1) as well as for the effects of anxiety (see figs. 1 and 3). The triangulated design and the similarity of these results confirm that the mitigating effect of an abstract mind-set on assessment of task difficulty is indeed caused by psychological distance.

One might ask whether the effect of physically leaning back from a task can be attributed to confounding factors such as changes in visual clarity or approach-avoidance motivations. Again, the triangulated design and converging results of the first two studies suggest that psychological distance is indeed the key driver for the observed effect and that the aforementioned alternative accounts did not play a role.

The results also show when psychological distance mitigates feeling of difficulty. The effect manifested for complex tasks that elicited a feeling of difficulty but not for simple tasks that did not elicit such an experience. The asymmetric effects of psychological distance on complex and simple tasks rule out the scaling account as a viable alternative explanation. Furthermore, the effects of chronic task anxiety offer evidence of the role of subjective experiences. As postulated in hypothesis 3a, participants who were more anxious about the task experienced greater difficulty, and psychological distance reduced this effect. When participants distanced themselves from the task by thinking abstractly (study 1A) or by leaning away from the task (study 1B), the effect of chronic task anxiety was mitigated. These results are consistent with the finding of Kross et al. (2005) that self-distancing reduces the intensity of negative feelings and blood pressure reactivity.

OVERVIEW OF STUDIES 2 AND 3

Next, we explore an important downstream consequence—choice deferral—of the difficulty-mitigation effect of psychological distance. Choice deferrals often occur when consumers experience difficulty in choosing because, for example, none of the available options dominates. Building on the first two studies on the feeling of difficulty, we propose that psychological distance can reduce the feeling of difficulty experienced in making choices and thus reduce choice deferral. We test this hypothesis in two studies wherein we manipulated psychological distance by priming a construal mind-set (study 2) and by varying bodily distance (study 3). We presented a choice set to participants and counted the percentage of participants who decided to defer making a choice versus participants who were able to make a choice. We manipulated task complexity by varying choice complexity between two choice sets. In the simple choice set, one product clearly dominated the other, so the choice was easy to make. In the complex choice set, it was difficult to decide which product was superior. We predicted that psychological distancing would reduce choice deferral for a complex choice but not for a simple choice because the latter is unlikely to evoke a feeling of difficulty.

STUDY 2: ABSTRACT MIND-SET REDUCES CHOICE DIFFICULTY

In this study we examined the effect of psychological distance induced by construal mind-set in the context of choice difficulty and choice deferral. To enhance external validity, we conducted this study on Mechanical Turk—an online forum for collecting data (Mason and Suri 2010). This forum enabled us to collect data from a reasonably representative sample of consumers.

Method

Participants and Design. We posted a web-based questionnaire on an online forum for data collection, Mechanical Turk. Participants were paid \$3.00 for completing the questionnaire. About 51% of the 304 participants who responded to this study were female, and the average age of the participants was 31.6 years.

This study used a within-subjects manipulation of task complexity (complex vs. easy choice sets) and a continuous measure of construal mind-set as independent variables. We measured participants' construal mind-set after they had made their choices for the products using the Behavior Identification Form (BIF; Vallacher and Wegner 1989). The BIF is a 25-item questionnaire that assesses the level at which individuals construe everyday behaviors. This scale has been used to measure construal mind-set in previous studies (Trope and Liberman 2010).

Stimulus: Choice Complexity. We manipulated task complexity by creating two choice sets—one complex and the other simple. We used computers for the complex choice and cameras for the simple choice. For each choice set, participants were shown two products from the same category in side-by-side fashion and seven attributes for each product. The critical difference between the two choice sets was the ease of choosing the superior product. We purposely chose two computers that had dissimilar attributes, which makes it difficult to decide which one is superior. For example, computer A had an "insensitive mouse," while computer B had "low hard disk capacity," two features that were difficult to compare and of little use in determining which option dominated. In contrast, for the cameras, camera B was a better choice than camera A because the latter was priced much higher (\$499 vs. \$209) even though both had similar features. For the complex choice set (computers), to make the choice difficult the prices of the options were not provided.

Procedure. Participants were informed that a reputed electronics retailer was interested in learning about consumer preferences for computers and cameras. Participants viewed the information about the pair of products in one category and made a choice. They then received information about the pair of products in the other category and made a choice. The order of the choice sets was counterbalanced. For each category, they had to choose one of the three response options: "I will choose option A," "I will choose option B," or "I will defer making a choice." The main dependent variable was the percentage of participants who deferred making a choice for each product category.

After completing the two choice tasks, participants were shown the two choice sets once again. For each choice set they indicated how easy or difficult it was to choose one of the two products in each category (cameras and computers) on an unmarked 7-point scale anchored at $1 =$ "very difficult" on the far left, and "very easy" on the far right. Responses were coded as -3 and 3 for the left and right anchors, respectively. After completing the choice task, participants completed the 25-item BIF (Vallacher and Wegner 1989) and answered questions about their demographics.

Results

Participants' responses to the 25-item BIF were summed to form a composite measure of construal mind-set. A higher score on this measure indicates a more abstract mind-set and therefore greater psychological distance from the task. This composite was used as an independent variable in all the analyses. Since construal mind-set is a continuous variable, following Fitzsimons (2008) we used appropriate regression models to test our hypotheses.

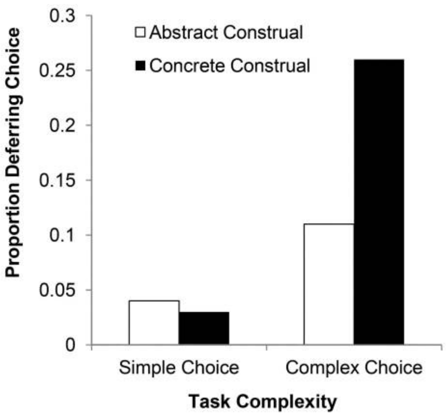
Choice Deferral. Responses to the computer and camera choice tasks were coded as one when participants deferred making a choice and as zero when they chose one of the two products from the choice sets. These responses were submitted to a repeated-measures logistic regression with the following predicting variables: construal mind-set (standardized score on the BIF scale) as a continuous variable, task complexity (coded as complex $= 1$ and simple $= 0$), and their interaction. The main effect of task complexity was significant ($\beta = .14$, $p < .01$). The sign of the coefficient suggests that participants were more likely to defer their choice for the complex choice set (computers) than for the simple choice set (cameras). More important, the interaction of task complexity and construal mind-set was significant ($\beta = -.08$, $p < .01$). The sign of the coefficient suggests that being in an abstract mind-set reduced the effect of choice complexity on choice deferral. Planned tests of simple slopes of the construal mind-set for the two choice sets revealed that the slope of the construal mind-set was significant for the complex choice set (computers: $\beta = -.07, p < .01$); the sign of the coefficient suggests that being in an abstract mind-set reduced choice deferral in this case. The abstract mind-set did not, however, affect choice deferral for the simple choice set (cameras: $\beta = .004$, $p >$ .70).

To confirm our interpretation of the regression results, using a median split procedure on their BIF scores, we divided the participants into two groups: concrete thinkers had lower scores ($M = 11.9, N = 152$) than did abstract thinkers ($M = 20.5$, $N = 152$). Figure 4 depicts how the proportion of choice deferrals varies across the two construal mind-set levels. The pattern is consistent with our interpretation of the regression results. For the complex choice set (computers), being in an abstract mind-set reduced choice deferral by about 15%, whereas for the simple choice set (cameras), being in an abstract mind-set did not affect choice deferral at all.

Choice Difficulty Rating. We submitted ratings of choice difficulty to a mixed factorial analysis, with choice complexity (complex vs. simple) as a within-subjects categorical variable and construal mind-set (the BIF score) as a continuous variable. The main effect of choice complexity ($F(1, 302) = 35.8, p < .01$) was qualified by a two-way interaction between choice complexity and construal mind-set (F(1,

FIGURE 4

STUDY 2: ABSTRACT CONSTRUAL REDUCED CHOICE DEFERRAL



302) = 13.9, $p < .01$). To probe the two-way interaction, we examined the simple slopes of construal mind-set for the two choice sets. The analysis revealed that the slope of the construal mind-set was significant for the complex choice set (computers: $\beta = .33$, $p < .01$); the sign of the coefficient suggests that being in an abstract mind-set rendered the choice task less difficult. (Note that lower ratings indicate greater difficulty.) However, abstractness of construal mind-set did not affect the difficulty rating for the simple choice set (cameras: $\beta = -.11$, $p > .19$).

Mediated Moderation. To confirm that the effect of construal mind-set on choice deferral was indeed caused by reduction in choice difficulty, we ran a series of regressions specified by Muller, Judd, and Yzerbyt (2005) for testing mediated moderation. The analysis revealed that controlling for the effects of the proposed mediating variable (choice difficulty rating) reduced the direct effect of the two-way interaction of the independent variables (construal mind-set and choice complexity) on the dependent variable (choice deferral). The mediated moderation results are schematically depicted in figure 5. The two-way interaction effect of the independent variables on the mediating variable was significant ($\beta = .44$, $p < .01$), and the mediating variable was a significant predictor of the dependent variable ($\beta = -.07$, $p < .01$). Controlling for the mediated path in the regression model reduced the direct effect of the interaction between the two independent variables from $\beta = -.08$, $p < .01$, to $\beta = -.05$, $p = .04$. The effect of the mediating variable was significant in this model ($\beta = -.06$, $p < .01$).

Discussion

Consistent with hypotheses 1a and 2, these results show that the abstract mind-set reduced choice difficulty and choice deferral for the complex choice but not for the simple choice. Further, choice difficulty mediated the effect of abstract construal on choice deferral. The asymmetric effects of psychological distance on complex and simple tasks suggest that psychological distance operates independently of the scaling account.

Nevertheless, there are still several issues that need to be addressed. First, in this study we measured participants' psychological distance (which should vary by construal mind-set) instead of directly manipulating it. Second, although we designed the stimuli such that desirability and feasibility benefits do not vary between available options, it is still possible that participants' construal mind-set might have altered their desirability-feasibility orientation (Hamilton and Thompson 2007), which in turn, might have affected choice deferral. Third, one could argue that being in an abstract mind-set might have increased participants' confidence when facing a difficult choice task (Tsai and McGill 2011) or reduced participants' attention to negative aspects of the options—greater focus on pros than on cons (Herzog, Hensen, and Wänke 2007), thus making the choice seem easy. We examined these possibilities in study 3.

STUDY 3: BODILY DISTANCE REDUCES CHOICE DIFFICULTY

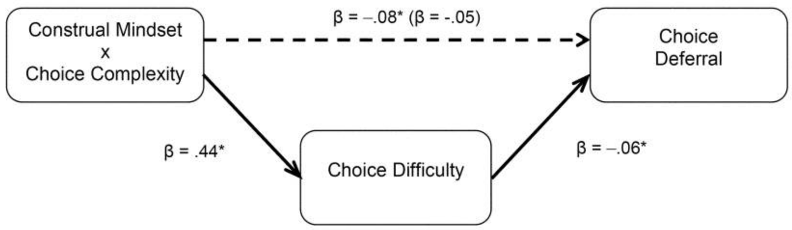
This experiment was broadly similar to study 2 but we made several changes to address the limitations of that experiment and rule out alternative accounts. First, instead of measuring psychological distance using the BIF, we directly manipulated psychological distance using the procedure from study 1B (instructing participants to lean toward or away from the task). If we replicate the results from study 2, then we can conclude that the effect is indeed caused by psychological distance. Second, we measured individual differences in task anxiety before the choice task. Note that in studies 1A and 1B task anxiety was measured after the main test. It could be argued that the individual difference measure was contaminated by the task. To rule out this possibility, in study 3 we measured task anxiety before the main test.

Third, after the main test, we measured choice difficulty as well as other potential mediators including confidence and the relative weighting of desirability versus feasibility considerations, pros versus cons, and gist versus details. Consistent with Vallacher and Wegner's (1987) theorization, our conceptualization posits that there is a deep-seated direct associative relation between psychological distance and feeling of difficulty and that spontaneous appraisals based on this association do not require higher order inferences about desirability-feasibility, pros-cons, or other such variables. Therefore, we did not expect any of these variables to mediate the effect of psychological distance.

Fourth, to enhance the generalizability of our results, we manipulated task complexity as a between-subjects variable (as opposed to as a within-subjects variable as in the previous studies). This change also allowed us to rule out product category differences as a confounding factor. Recall that in study 2 we used two distinct categories—cameras and

FIGURE 5

STUDY 2: FEELING OF DIFFICULTY MEDIATED THE INTERACTIVE EFFECT OF CHOICE COMPLEXITY AND CONSTRUAL MIND-SET ON CHOICE DEFERRAL



NOTE.—* indicates that the effect is significant at $p < .01$. Higher scores on choice difficulty rating indicate lesser difficulty.

computers—because choice set complexity was manipulated within subjects. The two choice sets might differ not only in choice difficulty, but also in other unintended nuances. We addressed this concern in the present study by keeping the product category same across conditions.

Method

Participants and Design. The study was posted on Mechanical Turk, and the sample population was similar to the one tested in study 2. About 56% of the 243 participants who finished the study were female, and the average age of the participants was 30.7 years. The study employed a 2 (task complexity: complex vs. simple choice sets) × 2 (psychological distance: proximal vs. distant) between-subjects design. Participants were randomly assigned to one of the four conditions by the computer program.

Stimulus. All participants were shown descriptions of two computers in side-by-side fashion and six attributes for each computer. In the complex choice condition, it was unclear which option dominated because the attributes for computers were difficult to compare and it was difficult to identify the superior computer. Further, as in the previous study, the prices of the options in the complex set were not provided. In contrast, in the simple choice condition, computer A was clearly a better choice than computer B because the latter was priced much higher ($1,399 vs. $979) even though both had similar attributes.

Procedure. The procedure was similar to the one we followed in the previous studies, but we diverged from it in two ways. In study 3 we measured task anxiety (i.e., individual differences in anxiety associated with the computer purchase task) at the very beginning of the questionnaire, before administering the manipulation of psychological distance. On 7-point unmarked scales, participants reported the extent to which they agreed with three statements: "I feel 'anxious' [or 'nervous' or 'worried' for the next two statements] about purchasing a computer" (left anchor: "strongly disagree"; right anchor: "strongly agree").

Subsequently, participants were administered the distance manipulation described in study 1B (see fig. 2). Half of the participants were instructed to lean toward the computer, whereas the remaining participants were instructed to lean away from the computer. Participants were instructed to maintain the assigned posture throughout the task so that we could elicit their natural responses. After reading the instructions, participants assumed the assigned body pose and completed the computer choice study. Other than the choice and measures of choice difficulty used in the previous study, we measured effort and involvement by asking participants to indicate how earnestly they tried to make a sound judgment, how engaged they were with the task, and how much attention they paid to the information about the products. Finally, we added several new process measures (described below) to test alternative accounts.

Desirability versus Feasibility Focus. After completing the main dependent measures, we measured the relative weighting of desirability aspects and the feasibility aspects of the computers when making a choice. Participants were asked to rate the relative importance of desirability and feasibility considerations in their choices. They indicated the relative importance on a bipolar 7-point scale anchored at 1 = "desirability of the features of the computers," 7 = "ease of using the computers."

Gist versus Details. To assess whether leaning away from the task influenced their attention to detail, participants indicated their disagreement or disagreement with four statements (anchored by 1 = "strongly disagree," 7 = "strongly agree"). They indicated the extent to which they focused on the gist (why aspects), concrete details (how aspects), primary product features, and secondary aspects such as presentation format.

Confidence. Next, participants indicated how confident they felt overall and how confident they were that they chose the right option on respective 7-point scales (1 = "not at all" confident, 7 = "very confident").

Pros versus Cons. To test whether our manipulation influenced the tendency to focus on pros versus cons (Herzog et al. 2007), participants indicated their disagreement or disagreement with a series of statements (1 = "strongly disagree," 7 = "strongly agree"). We expected participants who focused on pros to try to maximize the positive aspects and those who focused on cons to try to minimize the negative aspects. Based on this premise, participants were asked to indicate the extent to which their goal was to maximize quality, minimize price, maximize satisfaction, minimize dissatisfaction, maximize advantages, and minimize disadvantages. Finally, participants reported their demographic details.

Results

Responses from six participants whose task completion times were one standard deviation below the mean were excluded from the analyses.

Manipulation Check: Bodily Distance. Using a factorial analysis of variance, we examined how the three independent variables—individual differences in task anxiety, bodily distance, and task complexity—influenced reported bodily distance. Only the main effect of bodily distance was significant ($F(1, 229) = 50.8$, $p < .01$). Analysis of means confirmed that participants in the proximal condition ($M_{\text{proximal}} = 2.57$) indicated that their position was closer to the computer screen than that of those in the distant condition was ($M_{\text{distant}} = 5.83$). This measure was unaffected by task complexity or task anxiety (all $p > .27$). A similar pattern was observed in self-reported objective distance in inches. The average distance between the participants' eyes and the computer screen in the proximal condition was 15 inches, while it was 27.8 inches in the distant condition ($F(1, 229) = 38.2$, $p < .01$). This measure was also unaffected by task complexity or task anxiety (all $F < 1$).

Individual Difference: Task Anxiety. The three task anxiety measures that were administered prior to the bodily distance manipulation were correlated ($\alpha = .89$) and so were summed to form an aggregate index of task anxiety. As expected, the manipulation of bodily distance and task complexity did not affect the individual differences in task anxiety ($p > .12$).

Choice Deferral. Participants' responses to the choice task (coded as one when participants deferred making a choice and as zero when they chose one of the two products from the choice sets) were submitted to a logistic regression with the following predicting variables: bodily distance (coded as distant = 1 and proximal = 0), task complexity (coded as complex = 1 and simple = 0), and individual differences in task anxiety and their interaction terms. The two-way interaction effect of task complexity and task anxiety was significant ($\beta = 1.16$, $p = .05$); the sign of the coefficient suggests that task anxiety and task complexity interactively increased choice deferral. More importantly, the predicted three-way interaction between bodily distance, task complexity, and task anxiety ($\beta = -1.60$, $p = .03$) was significant.

To test the effect of task complexity, we examined the simple slopes of task anxiety. When the choice set was simple, the slopes of task anxiety were not significant (both $p > .14$). For the complex choice set, however, task anxiety increased choice deferral when participants were leaning toward the task ($\beta = .38$, $p = .04$) but not when they were leaning away from the task ($\beta = -.26$, $p > .15$). That is, leaning away from the task attenuated the effect of task anxiety on choice deferral. To confirm our interpretation of the regression results, we computed the cell means after dividing the participants into two groups based on a median-split of their reported task anxiety scores. Leaning away from the task had the largest effect on choice deferral when the choice task was complex and task anxiety was high: psychological distance reduced choice deferral by 30% (from 48% to 18%). However, when task anxiety was low, fewer participants deferred their choices and psychological distance did not affect choice deferral (22% vs. 28%). Furthermore, when the choice task was simple, very few participants deferred choice and psychological distance did not affect choice deferral (4% vs. 5%). These results therefore support hypotheses 2, 3a, and 3b.

Choice Difficulty Rating. We analyzed ratings of choice difficulty considering bodily distance and choice complexity as categorical variables and individual differences in task anxiety as a continuous variable. The main effects of choice complexity ($F(1, 229) = 18.9$, $p < .01$) and task anxiety ($F(1, 229) = 14.9$, $p < .01$) were significant. More importantly, the three-way interaction was significant ($F(1, 229) = 4.5$, $p = .03$), suggesting that distancing from the task moderated the effects of task complexity and task anxiety.

To interpret the three-way interaction, we examined the simple slopes of task anxiety, which revealed that, for the complex choice, task anxiety increased the feeling of difficulty experienced during choice in the proximal condition ($\beta = -.36$, $p < .01$) but not in the distant condition ($\beta = -.11$, $p > .24$). That is, leaning away from the task attenuated the effect of task anxiety on choice difficulty. When the choice set was simple, the slopes of task anxiety were not significant (both $p > .16$). These results, thus, once again, support hypotheses 2, 3a, and 3b.

Mediated Moderation. To test whether the effect of bodily distance on choice deferral was indeed mediated through a reduction in choice difficulty, we ran a series of regressions specified by Muller et al. (2005) for testing mediated moderation. The analysis revealed that controlling for the effects of the mediating variable (choice difficulty rating) reduced the direct effect of the three-way interaction of the independent variables (bodily distance, choice complexity, and task anxiety) on the dependent variable (choice deferral). The three-way interaction effect of the independent variables on the mediating variable was significant ($\beta = .43$, $p = .03$), and the mediating variable was a significant predictor of the dependent variable ($\beta = -.95$, $p < .01$). Controlling for the mediating variable in the logistic regression model reduced the direct effect of the interaction between the three independent variables from $\beta = -1.60$, $p = .03$, to $\beta = -1.22$, $p = .08$. The effect of the mediating variable was significant in this model ($\beta = -.92$, $p < .01$).

Additionally, we conducted several multiple-mediation analyses to rule out alternative accounts that the effects of bodily distance might have been caused by changes in confidence, or the relative weights assigned to desirability versus feasibility, gist versus details, or pros versus cons. Specifically, we entered one of these variables as a potential mediating variable in addition to our proposed mediator (choice difficulty) in each mediated moderation regression model prescribed by Muller et al. (2005). If these alternative mechanisms play a central role in the effect of bodily distance on choice deferral, then controlling for them in the mediated moderation model should attenuate the mediating effect of choice difficulty. The main findings from the multiple-mediation analyses are reported below.

Desirability versus Feasibility Considerations. The relative importance of desirability and feasibility considerations was entered as a potential mediator along with choice difficulty rating in the Muller et al. (2005) mediated moderation analysis. The model included the two potential mediators (choice difficulty rating and relative importance of desirability and feasibility considerations) and bodily distance, choice complexity, and individual differences in task anxiety and their interaction terms as predictors. Choice difficulty rating mediated the effect of the three-way interaction on choice deferral ($\beta = -.94$, $p < .01$), but the relative importance of desirability and feasibility considerations did not ($p > .31$). These results suggest that the effect of bodily distance on choice deferral was not caused by differential weighting of desirability and feasibility considerations.

Gist versus Details. Since the four measures of detail orientation were not highly correlated (pair-wise correlation coefficients < .47 and $\alpha = .45$), we analyzed each of them separately as a potential mediating variable. Each of the four measures of detail orientation was entered separately as a potential mediator along with choice difficulty rating in the Muller et al. (2005) mediated moderation analysis, yielding four sets of mediated moderation analyses. Each of the four models included the two potential mediators (choice difficulty rating and one measure of gist-details focus) and bodily distance, choice complexity and individual differences in task anxiety and their interaction terms as predictors. In these models, choice difficulty rating mediated the effect of the three-way interaction on choice deferral (all $p < .01$), but the measures of detail orientation did not (all $p > .11$). These results suggest that the effect of bodily distance on choice deferral was not caused by differential weighting of gist and details.

Pros versus Cons. An index measuring the propensity to maximize pros was formed by averaging the three items—maximize quality, satisfaction, and advantages ($\alpha = .73$). When this index and choice difficulty rating were entered simultaneously as potential mediators in the Muller et al. (2005) mediated moderation model, choice difficulty rating mediated the effect of the three-way interaction on choice deferral ($\beta = -.96$, $p < .01$), but the pros index did not ($p > .10$). In a similar vein, an index measuring the propensity to minimize cons was formed by averaging the three items—minimize price, dissatisfaction, and disadvantages ($\alpha = .60$). When this index and choice difficulty rating were entered simultaneously as potential mediators in the Muller et al. (2005) mediated-moderation model, although the effect of the cons index was significant ($\beta = .15$, $p = .05$), controlling for this index did not mitigate the mediating effect of choice difficulty rating on choice deferral ($\beta = -.95$, $p < .01$). Finally, a composite index for the relative weighting of pros and cons was formed by subtracting the average propensity to minimize cons from the average propensity to maximize pros. A similar multiple-mediation analysis revealed that choice difficulty rating mediated the effect of the three-way interaction on choice deferral ($\beta = -.91$, $p < .01$), but the index measuring relative attention to pros versus cons did not ($p > .36$). These results suggest that the effect of bodily distance on choice deferral was not caused by differential weighting of pros and cons.

Choice Confidence. The two items measuring confidence were averaged ($r = .78$), and this confidence index was regressed on bodily distance, choice complexity, individual differences in task anxiety, and their interaction terms. Only the interaction effect of choice complexity and task anxiety was significant ($\beta = -.31$, $p < .01$); none of the other effects of bodily distance were significant (all $p > .10$). More important, when confidence and choice difficulty rating were entered simultaneously as mediators in the Muller et al. (2005) mediated moderation model, confidence did not predict choice deferral ($p > .60$), and the effect of difficulty rating on choice deferral remained significant ($\beta = -.96$, $p < .01$).

Confound Check: Self-Reports of Effort. The bodily distance manipulation did not change how earnestly participants tried to make a sound judgment, how engaged they were with the task, and how much attention they paid to the information about the products. The main effect and the interaction effects involving bodily distance were not significant (all $p > .18$).

GENERAL DISCUSSION

Our central finding is that increasing psychological distance can mitigate the feeling of difficulty that is elicited by complex tasks. When a task is construed from a distant perspective, based on the distance-difficulty relationship the mind nonconsciously infers that the task is less difficult. Conversely, when a task is construed from a proximal perspective, the mind infers that the task is more difficult. This spontaneous inference affects subjective experiences of difficulty. We show that this effect can manifest even for such elemental tasks as pronunciation of meaningless strings of letters (studies 1A and 1B), which do not involve deliberative thinking about the trade-offs between desirable and feasible or primary and secondary attributes. Furthermore, we show that mere bodily distancing from a task—a manipulation that does not entail thinking about desirability and feasibility or gist and details—can also cause this effect.

We demonstrated the difficulty-mitigation effect of psychological distance in two distinct domains—judgments of pronunciation difficulty and judgments of choice difficulty. Across these studies we used a range of approaches to manipulate psychological distance—by priming abstract-concrete mind-sets (study 1A), by measuring chronic differences in abstract and concrete construal (study 2), and by manipulating bodily distance (studies 1B and 3). The triangulated designs of the studies offer converging evidence that the observed effect is indeed caused by psychological distance.

The moderators and mediators identified in this research support our account. First, the studies consistently show that, for the difficulty-mitigation effect to manifest, the task must be complex to begin with. For simple tasks that do not produce a feeling of difficulty, psychological distance had no effect on task difficulty. This asymmetry rules out the scaling account (i.e., psychological distance changes mental scale) as a viable alternative explanation. Second, our empirical evidence supports our contention that subjective feeling played a central role in the observed effect. In particular, we observed that individual differences in anxiety amplified the feeling of difficulty caused by complex tasks but that psychological distance mitigated the effect of task anxiety (studies 1A, 1B, and 3). These results cannot be explained parsimoniously by differential attention to desirability and feasibility considerations, confidence, approach-avoidance orientation, or effort.

We believe our work has important theoretical and practical implications. Our findings offer a novel account explaining why a bystander, friend, or spouse might not experience the same feeling of difficulty as a perceiver. When one is trying to perform a difficult task, other people perceive the same task from a greater distance, which mitigates their feeling of difficulty. The results also suggest that leaning away or toward the computer screen can unintentionally influence perceived difficulty of online tasks.

Relationship to Previous Findings

Our findings offer a new interpretation of some findings in extant research. Several studies have demonstrated that being in an abstract construal mind-set can systematically reduce attention to feasibility considerations and enhance attention to desirability considerations. For example, Liberman and Trope (1998) found that, for distant choices, people favor interesting but difficult homework assignments. They attributed this effect to the discounting of the difficulty of completing the assignment. Similarly, Thompson et al. (2009) have found that outcome orientation can reduce choice difficulty. However, these studies do not determine whether the observed effect is due to the discounting of difficulty ("difficulty is not relevant to this judgment") or to a diminished feeling of difficulty ("this task does not feel difficult"). The extant literature has largely endorsed the discounting account. Our results are the first to show that psychological distance can actually mitigate the feeling of difficulty.

The present results are consistent with, and extend, the recent findings by Tsai and Thomas (2011). They demonstrated that construal mind-set moderates fluency effects. Specifically, they found that the metacognitive experience of difficulty caused by bad font and cognitive complexity are less likely to influence preferences under conditions of abstract mind-set; such effects of metacognitive experiences are more likely under conditions of concrete mind-set. The results from the present research extend these findings by suggesting that abstract mind-set not only reduces the influence of metacognitive experiences on judgments but also reduces the experience of difficulty itself.

It is pertinent here to note that Vallacher and Wegner (1989), based on their theory of the level of action identification, suggested a reversed causal relationship between task difficulty and abstract thinking. They suggested that people use abstract representations for easy tasks and concrete representations for difficult tasks. They contended that people think about simple tasks in encompassing terms that incorporate the motives and larger meanings of the task, whereas complex tasks prompt people to focus on the details or step-by-step processes required for completing the tasks. Our conceptualization develops their finding in two ways. First, we suggest that the relationship between level of identification and task difficulty can be bidirectional. Second, we offer additional insights into the underlying mechanism by investigating the role of psychological distance in the assessment of task difficulty.

Future Research

The present findings raise several questions that merit attention in future research. In our studies, we considered individual differences in task anxiety as a moderating variable. We did not measure or manipulate momentary feelings of anxiety and examine whether they mediate the effect of psychological distance on difficulty. This could be a fruitful avenue for future research. Another potential research question pertains to the generalizability of these findings to other types of feelings. Our findings, along with the findings of Ayduk and Kross (2008) and Kross et al. (2005), suggest that psychological distance reduces negative feelings. It is worth investigating whether psychological distance can intensify certain types of feelings. Finally, it might be worth investigating whether the observed effect varies across types of decision difficulty. Liberman and Förster (2006) have suggested that people draw differential inferences from decision difficulty depending on whether the difficulty involves a one-shot decision or repeated decisions. They found that decision difficulty increased deferral for one-shot decisions but that the situation was reversed for repeated decisions. Although it lies beyond the scope of the present research, careful research is needed to better understand when decision difficulty will lead to choice deferral and when it will facilitate choice.

APPENDIX

TABLE A1

STIMULI USED IN STUDIES 1A AND 1B

Simple words	Simple nonwords	Complex nonwords
STATION, MACHINE, DETAIL, ABSOLUTE, CIRCLE, PLANET, CURTAIN, TENDON, THEORY, PREDICT, NOTION, PROCEED	HENSION, VASSIL, PLENDON, FRAMBLE, FISSEL, SUBEN, TUMMEL, MESTIC, GARDER, WIPPLE, PLANDER, WIMBLE	STOFWUS, HADTACE, PNAFTED, GERTPRIS, MEUNSTAH, COELEPT, NOTRIGIN, BLENTIRP, CADPECHT, GEPPOIT, TONGITER, MERFICA

NOTE.—The stimuli are adapted from Whittlesea and Williams (2000).

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