

RELAXATION INCREASES MONETARY VALUATIONS

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## RELAXATION INCREASES MONETARY VALUATIONS

### Abstract

This research documents an intriguing empirical phenomenon whereby states of relaxation increase the monetary valuation of products. This phenomenon is demonstrated in six experiments involving two different methods of inducing relaxation, a large number of products of different types, and various methods of assessing monetary valuation. In all six experiments participants who were put into a relaxed affective state reported higher monetary valuations than participants who were put into an equally pleasant but less relaxed state. This effect seems to be caused by differences in relaxed and non-relaxed individuals' mental construals of the value of the products. Specifically, compared to less-relaxed individuals, relaxed individuals seem to represent the value of products at a higher level of abstraction, which increases their perceptions of these products' value. The phenomenon appears to reflect an inflation of value by relaxed individuals rather than a deflation of value by less-relaxed individuals.

Whether one is buying a house, negotiating the price of a car, deciding which university to attend, or considering whether to invest in the stock market, common wisdom holds that people should be relaxed and at ease during the decision-making process. It is indeed generally assumed that the calmer people are, the better their decisions will be. Yet very little research has been done on the effects of relaxation on consumer judgment and decision making (see Bosman and Baumgartner 2005; Gorn et al. 2004; and Park, Kim, and Schwarz 2009, for some exceptions). This is particularly surprising considering that of all the consumer experiences that marketers try to create, states of relaxation are among the most common (e.g., in hotel rooms, in business-class cabins, in airport lounges, and of course in spas).

The purpose of this research is to investigate the effects of relaxation on an important dimension of consumer judgment: the monetary valuation of products. Even though it is typically not in consumers' interest to have inflated perceptions of the monetary value of products, we document across six experiments an intriguing phenomenon: states of relaxation consistently increase the monetary valuations of products. This increased valuation effect seems to reflect differences in how relaxed and non-relaxed individuals mentally construe the products they evaluate. Specifically, compared to less-relaxed individuals, relaxed individuals appear to mentally represent the products whose monetary value they are assessing at a higher level of abstraction, which leads them to perceive these products as being more valuable.

#### *RELAXATION, CONSTRUAL, AND VALUATION*

While lay conceptions of relaxation tend to be relatively simple, relaxation, which can be considered the opposite of the stress response (Benson 2000), is in fact a fairly complex state in that it has multiple underlying components (Lechstein 1988; Smith 1999). At the physiological level, relaxation is characterized by a reduced activation of the autonomic nervous system (e.g.,

slower breathing, reduced blood flow) and a lowering of muscular-skeletal tension. Many contemporary relaxation techniques such as progressive muscle relaxation (Jacobson 1938) and controlled breathing focus primarily on this physiological component. At the emotional level, relaxation is characterized by feelings of calmness and peacefulness, which from an appraisal perspective may serve as signals of the absence of threats in the environment (Gilbert et al. 2008).<sup>i</sup> As an affective state, relaxation is generally experienced as pleasant (Russell 1980). Finally, at the cognitive level, relaxation is characterized by a lack of worry and preoccupation, and a sense of detachment (Smith et al. 1996). Many meditation-based techniques for inducing relaxation operate at this level, reducing worry and preoccupation by having individuals repeat positive phrases such as mantras (Lichstein 1988). In sum, relaxation is a complex physiological, emotional, cognitive state that can be induced by a variety of means, and one that marketers often try to induce in consumers.

Why would it be in a marketer's interest to induce relaxation? One understandable reason is that relaxation is inherently pleasant. This seems to be the primary motivation behind the design of many relaxing environments in the marketplace. However, we suggest that there may be another reason, one that is less obvious. This second reason can be derived through a combination of insights from two different literatures.

One stream of research in the relaxation literature suggests that states of relaxation may encourage a broader and more contemplative form of thinking. For instance, Fredrickson and Branigan (2005) found that participants who were made to feel serene by watching a movie processed geometric figures more globally (less locally) than participants who were made to feel neutral. Similar results were found among participants who scored low on Spielberger's (1968) Trait Anxiety Scale—that is, participants who were chronically more relaxed<sup>ii</sup> (Tyler and Tucker

1982). Other studies suggest that states of relaxation promote creativity. For instance, compared to control participants, participants induced into a relaxed state were found to perform better on several dimensions of the Torrance Tests of Creative Thinking (Hershey and Kearns 1979; see also Mehta and Zhu 2009 for conceptually related results). Taken together, this first stream of research suggests that relaxed consumers are likely to have more global and abstract representations of marketplace information than non-relaxed consumers.

A second stream of research, the construal-level theory literature (Trope and Liberman 2003), suggests that various dimensions of psychological distance—such as time, space, or social distance—encourage more abstract representations (or construals) of goal-relevant objects. Such changes in level of representation (or construal) of goal objects can fundamentally alter the way the objects are appraised (Lieberman and Trope 1998; Liberman, Trope, and Stephen 2007; Trope and Liberman 2003). In particular, under higher levels of construals, objects or activities (e.g., reading a science fiction book) are more likely to be assessed in light of higher-order (superordinate) goals (e.g., “expanding one’s horizon”), whereas under lower levels of construals the same activities are more likely to be perceived in terms of subordinate considerations (e.g., “the plot is easy to follow”). In addition, under higher levels of construals, goal-directed activities (e.g., going on a vacation in Mexico) are also more likely to be evaluated in terms of their overall desirability (e.g., how appealing Mexico is), whereas under lower levels of construals these activities are more likely to be evaluated in terms of their feasibility (e.g., the timing of the vacation, the cost, the amount of travel involved). Finally, under higher levels of construals, potential courses of actions tend to be evaluated more in terms of their potential advantages, whereas under lower levels of construal, potential disadvantages tend to carry more weight (Eyal, et al. 2004). Given that most products and services are meant to fulfill broadly

desirable goals, a higher level of construal should generally increase their perceived monetary worth. This is because products and services should be perceived as more valuable when they are appraised (a) in terms of higher-order goals (e.g., “Travelling in business class allows me to be more productive”) as opposed to lower-level considerations (e.g., “I have more leg room”), (b) with a focus on desirability (e.g., “How much do I want it?”) as opposed to feasibility (e.g., “Can I afford it?”), and (c) with more attention to the advantages than to the disadvantages. Consistent with this general prediction, Liu (2008) recently found that interrupting the decision-making process, which results in a higher level of construal of the decision, decreases price sensitivity and increases preference for highly desirable (but less feasible) options .

Combining insights from these two literatures leads to the prediction that relaxation should encourage a more abstract representation (or higher-level construal) of the value of products. This higher level of construal should result in most products/services being valued more by more-relaxed consumers than by less-relaxed consumers. For example, when assessing the monetary value of a digital camera, compared to less-relaxed consumers, more-relaxed consumers would tend to focus more on what the camera will enable them to do (e.g., collect memories) and how desirable and advantageous it is to own it, as opposed to the concrete features of the camera itself (e.g., the number of megapixels, the shutter speed), its potential disadvantages, and the practicality of its purchase. This higher level of representation would result in relaxed consumers perceiving the camera to be more valuable than less-relaxed consumers might.

In the present research, the general hypothesis that relaxation results in higher monetary valuations was tested in a series of six controlled lab experiments. Across studies, more than 670 participants were induced either into a state of relaxation or into an equally pleasant but less

relaxed affective state. Then, as part of a supposedly unrelated study, they were asked to assess the monetary value of products. Different measures of monetary valuation were used across studies. Participants who were more relaxed were consistently found to have higher monetary valuations of the products than participants who were less relaxed.

The first study demonstrates the basic phenomenon across various products. The second study replicates this effect using more refined measures of monetary valuation. The third study shows that the effect is eliminated when consumers are encouraged to think about the specific characteristics of the product before they assess its monetary value, which is consistent with the idea that the effect of relaxation on monetary valuation is driven by differences in representation of the product's value. The fourth study provides more direct support for this construal-level explanation by directly manipulating participants' levels of representation. The fifth study provides further evidence of the proposed explanation through process measures. The final study shows that the effects are not specific to the particular manipulation of relaxation used in the first five studies and generalize across a variety of product types. The overall evidence suggests that it is the relaxed individuals who inflate the monetary value of products, rather than the less-relaxed individuals who deflate it.

#### *PRETEST*

Given that the purpose of the research was to investigate the specific effects of relaxation rather than the more general effects of pleasant states, it was critical to design a procedure that would vary participants' relaxation while holding constant the pleasantness of their affective state. A series of pretests was conducted to identify two stimulus videos: one that ideally would be very relaxing and another that would be equally pleasant but less relaxing (though not exciting or tension-inducing). The selection was eventually narrowed down to two particular

videos. The relaxing video was a 10-minute, professionally edited selection of segments from a relaxation DVD produced by a medical team. The segments depicted various nature scenes with soft music in the background while a soothing voice provided relaxation-inducing instructions (e.g., about controlled breathing). The control video was a 10-minute television documentary about the future role of robots in society. It featured scenes of robots engaging in a number of activities (e.g., playing music, shaking hands with celebrities).

These two videos were subjected to a final pretest with 32 participants from the same population as in the main studies. Participants were randomly assigned to view either the relaxing video or the control (less relaxing) video, which they viewed on individual computers equipped with headsets. After viewing the video, participants reported their current feelings on five items from Gorn et al. (1997), each rated on a 1 (not at all) to 9 (very much so) scale. Three items assessed relaxation: “I feel relaxed,” “I feel calm,” and “I feel peaceful” ( $\alpha = .81$ ), and two items assessed the sheer pleasantness of the affective state: “I feel pleasant” and “I feel good” ( $\alpha = .87$ ). As expected, the relaxing video induced stronger feelings of relaxation ( $M = 7.20$ ) than the control video ( $M = 6.06$ ,  $F(1, 30) = 5.53$ ,  $p < .03$ ). Note that while the control video was less relaxing than the relaxing video, the control video was still somewhat relaxing ( $M = 6.06$  on a 9-point scale). Therefore, the control conditions in our studies did not elicit tension or excitement, but rather a lower level of relaxation compared to the experimental conditions. A similar analysis of the pleasantness ratings indicated that both videos were relatively pleasant and were equally so ( $M_{\text{More-relaxed}} = 6.83$  and  $M_{\text{Less-relaxed}} = 6.41$  on 9-point scale;  $F < 1$ ). This is important because it makes it difficult to explain the effects of our relaxation manipulation in terms of sheer affect valence.

### STUDY 1

This first study provides an initial test of the effects of relaxation on the monetary valuations of products. Participants who were induced into either a relaxed state or an equally pleasant but less relaxed state were asked to assess the monetary value of a series of products. The perceived monetary value of these products was then compared across conditions.

### *Method*

All studies were conducted among business undergraduates who participated either for a small fee or in exchange for course credit. The first four studies were conducted in Hong Kong, and the last two studies were conducted in Singapore. All studies were run in small controlled lab sessions with participants assigned to separate partitioned stations equipped with computers and headphones, which were used to administer the relaxation manipulation.

In the first experiment, 45 participants were randomly assigned to either a more relaxed or a less relaxed condition. As in all of our studies, the experiment was cast as two unrelated studies. The real purpose of the “first” study was to administer the relaxation manipulation. Participants were told that the researchers were pretesting a variety of videos to be used in a future study. They viewed either the relaxing video or the control video for 10 minutes. Then they were asked to write down their thoughts about the video and rate it on a series of 7-point semantic differential items. Two items anchored by “relaxing/not relaxing” and “calming/not calming” assessed feelings of relaxation elicited by the program ( $\alpha = .86$ ) and served as a manipulation check. One item anchored by “pleasant/unpleasant” assessed the felt pleasantness of the program and served as a further check that the videos were matched in terms of valence. Three more items, serving as confounding checks, assessed evaluations of the program on various dimensions: “interesting/not interesting,” “difficult to understand/easy to understand,”

and “poorly done/well done.” After the video response questionnaires were completed and collected, participants were thanked for their participation in the video evaluation study.

The “second” study was then introduced. It was purportedly about the monetary value that people assign to various products they encounter in daily life. Participants were shown the names and pictures of 10 products, presented one at a time in a counterbalanced sequence: a backpack, a crystal tulip, a digital gauge for car tires, an LCD monitor, a magazine rack, a paper shredder, a picture frame, a scarf, a tennis racquet, and a vacuum cleaner. For each product, participants were asked, “How much is [the product] worth?” They were given for each product a choice of five price brackets of equal width, whose levels varied across products to reflect their different prices in the marketplace. Participants were asked to check the price bracket that best reflected how much they thought each product was worth. Their responses were converted into a five-point scale (the higher the price bracket, the higher the number).

### *Results*

*Preliminary analyses.* As expected, participants in the more relaxed condition reported being more relaxed ( $M = 6.26$ ) than participants in the less relaxed condition ( $M = 4.23$ ;  $F(1, 43) = 54.08, p < .001$ ). However, feelings of pleasantness did not differ between the two conditions ( $M_{\text{More relaxed}} = 4.14$  vs.  $M_{\text{Less relaxed}} = 4.54$ ;  $F(1, 43) = 1.00, p = .32$ ), consistent with the results of the pretest. In addition, the two videos were not evaluated differently in terms of how interesting they were ( $M_{\text{More relaxed}} = 4.38$  vs.  $M_{\text{Less relaxed}} = 4.75$ ;  $p = .28$ ), how easy they were to understand ( $M_{\text{More relaxed}} = 5.86$  vs.  $M_{\text{Less relaxed}} = 6.00$ ;  $p = .66$ ), and how well done they were ( $M_{\text{More relaxed}} = 3.52$  vs.  $M_{\text{Less relaxed}} = 2.92$ ;  $p = .11$ ).

*Perceived monetary worth.* The perceived monetary worth scores for the 10 products (see Table 1) were submitted to a mixed ANOVA with relaxation as a between-subjects factor and

the 10 products as a repeated factor.<sup>iii</sup> There was a within-subject main effect of products ( $F(9, 387) = 56.56, p < .0001$ ), which simply indicated that valuations varied across products. More importantly, there was a significant between-subjects main effect of relaxation ( $F(1, 43) = 9.72, p < .003, \omega^2 = .02$ ), indicating that the average monetary valuation pooled across products was higher in the more relaxed condition ( $M = 2.61$ ) than in the less relaxed condition ( $M = 2.23$ ). This effect was not qualified by a product  $\times$  relaxation interaction ( $F < 1$ ), indicating that it was essentially parallel across products. Simple-effect (univariate) tests indicated that monetary valuation scores were significantly higher in the more relaxed condition than in the less relaxed condition for six of the 10 products. For the other four products, the direction of the effect was the same, but the differences were smaller and not significant. There were no instances of reversal of the effect for any of the 10 products. Note that controlling for participants' pleasantness of feelings in an ANCOVA of the perceived monetary worth scores did not attenuate the main effect of relaxation ( $F(1, 42) = 11.30, p < .01$ ), which is consistent with the finding that the manipulation of relaxation did not alter the pleasantness of participants' mood. (The same was also true for the remaining studies and is therefore not discussed further.)

### *Discussion*

These results provide initial evidence that states of relaxation increase the monetary valuations of products. On average across products, participants in the more relaxed condition assigned higher monetary valuations than did participants in the less relaxed condition. As will be shown in the subsequent studies, this increased monetary valuation effect of relaxation is robust. Although the explanation for this effect will be examined in the subsequent studies, a mere mood-congruency explanation is not plausible because in all our studies the conditions were equated in level of pleasantness of feelings.

One could argue that the effects could be due to uncontrolled aspects of the content of the videos (e.g., the use of nature scenes in the relaxation video versus robots in the control video) rather than to relaxation per se. Two sets of results do not seem to support this alternative interpretation. First, as shall be seen in Study 6, similar results are obtained with a different manipulation of relaxation that simply uses instrumental music (no lyrics). Second, the two videos were judged to be largely equivalent on several evaluative dimensions such as interestingness, ease of understanding, and professional quality.<sup>iv</sup>

### *STUDY 2*

One potential reservation regarding Study 1 is that although the average monetary valuation across products was significantly higher in the more relaxed condition than in the less relaxed condition, this effect was not significant for every single product. A second potential reservation is that the monetary valuation measure, which involved price brackets, was not very refined. A third potential reservation is that information about each product was limited—only the names and pictures of the products were provided. The purpose of Study 2 was to address these possible reservations, in the following ways. First, to assess the robustness and generalizability of the phenomenon, another product category was used (a digital camera) and the context was changed to a bidding context. Second, more precise measures of monetary valuations were used. Third, more detailed information was provided about the product to add realism.

Participants were first put in either a more relaxed state or a less relaxed state, and then were asked to imagine that they were interested in a digital camera available on eBay. Two measures of monetary valuation were collected: (1) the maximum amount of money that participants were willing to bid for the camera; and (2) their estimates of how much the camera

was really worth. If relaxation increases the monetary valuation of products, these two measures should be higher among participants who are more relaxed than among participants who are less relaxed.

### *Method*

Fifty-one participants randomly assigned to conditions underwent the same relaxation induction procedure as in Study 1, including the same measures of responses to the video. The monetary valuation task was administered in the “second” study, which simulated bidding for a product on eBay. Participants were asked to imagine that they wanted to buy a particular digital camera that was available brand-new on eBay, free of shipping costs. A picture of the camera was provided with a description of its attributes such as its resolution, weight, and shutter speed, along with its suggested retail price (HK\$2,700). Participants were free to examine the camera for as long as they wanted. After examining the camera, as a first monetary valuation measure, participants were asked to indicate “the maximum bid (offer) you would be willing to make for this camera on eBay.” Next, they were asked to estimate the likelihood that they would be able to get the camera for the price they bid (1: “very unlikely”; 7: “very likely”). Then, as a second measure of monetary valuation, participants were asked to estimate “How much do you think this camera is really worth?” Participants next rated their perceptions of the camera on four 7-point bipolar scales: “not easy/very easy to use,” “has poor/good features,” “not nice-looking/nice-looking,” and “not convenient to use/convenient to use.” To assess task involvement as a potential alternative explanation, participants rated their involvement on three 7-point bipolar scales: “a little distracted/not distracted at all,” “did not/did take the task very seriously,” “not very focused/very focused” ( $\alpha = .70$ ). Finally, to check for demand characteristics, participants were asked to guess the purpose of the study.

## Results

*Preliminary analyses.* None of the participants guessed the true purpose of the study or even that the “two studies” were connected. As in the pretest and in Study 1, participants in the more relaxed condition reported being more relaxed ( $M = 5.75$ ) than participants in the less relaxed condition ( $M = 4.90$ ;  $F(1, 49) = 6.93, p < .01$ ). Again, feelings of pleasantness did not differ between the two conditions ( $M_{\text{More relaxed}} = 3.81$  vs.  $M_{\text{Less relaxed}} = 4.36$ ;  $F(1, 49) = 2.08, p > .15$ ). Task involvement was also equivalent across conditions ( $M_{\text{More relaxed}} = 4.14$  vs.  $M_{\text{Less relaxed}} = 3.60$ ;  $F(1, 49) = 2.43, p > .12$ ).

*Effects on monetary valuation.* As expected, participants' maximum bids were higher in the more relaxed condition ( $M = \$2,550$ ) than in the less relaxed condition ( $M = \$2,293$ ;  $F(1, 49) = 6.29, p < .02, \omega^2 = .09$ ; see means in Table 2), again suggesting that relaxation increases monetary valuation. (There was no difference in the perceived likelihood of bid acceptance;  $F < 1$ ). Participants also estimated the product to be worth more in the more relaxed condition ( $M = \$2,600$ ) than in the less relaxed condition ( $M = \$2,288$ ;  $F(1, 49) = 3.93, p = .05, \omega^2 = .07$ ).

*Effects on product perceptions.* Interestingly, there were no significant effects of relaxation on more specific perceptions of the product, whether it was ease of use ( $F < 1, p = .53$ ), features ( $F(1, 49) = 3.10, p = .084$ ), visual appeal ( $F(1, 49) = 1.91, p = .17$ ), or convenience ( $F < 1, p = .89$ ) (MANOVA- $F(4, 46) = 1.89, p = .13$ ). Therefore, it appears that relaxation influenced monetary valuations without necessarily affecting more specific perceptions of the product.

## Discussion

Monetary valuations were again found to be higher among more-relaxed participants than among less-relaxed participants. This effect was observed both in participants' bids for the

product and in their estimates of the monetary worth of the product. The fact that relaxation had similar effects on three different measures of monetary valuation—estimated price bracket, amount bid, and estimated monetary worth—provides converging evidence that states of relaxation do indeed increase monetary valuations. Moreover, the fact that this phenomenon was observed on multiple product categories in Study 1, and another product category in this study, suggests that the phenomenon is somewhat generalizable. (Further evidence of generalizability is provided in Study 6.) Finally, the fact that the results of Study 1 were replicated when participants were given more extensive product information suggests that the phenomenon is not restricted to situations in which consumers have very limited information about a product.

It was also found that relaxation did not have parallel effects on more specific perceptions of the product. This suggests that the effects of relaxation on monetary valuation are not driven by changes in product perceptions. Then why do states of relaxation increase monetary valuations? One possible explanation is that when assessing the monetary value of a product, relaxed individuals access a more abstract representation of this product's value than do less-relaxed individuals. The finding that relaxation did not influence more specific ratings of product perception may be interpreted in light of this explanation. It could be that these specific ratings of product perceptions, which were solicited *after* the monetary valuation judgments were made, directed all participants' attention to more concrete aspects of the product, thereby bringing all participants, relaxed and less relaxed, to a common concrete representation-level of the product. If this interpretation is correct, then assessing the more specific (lower-level) product perceptions *before* the monetary valuation judgments should attenuate the effect of relaxation on monetary valuation. Such an interaction would provide initial evidence that the effects of relaxation on

monetary valuation are indeed due to differences in levels of representation of the product's value among relaxed versus less-relaxed individuals. This initial test was done in Study 3.

### STUDY 3

The design of Study 2 was expanded in Study 3 to include an additional factor that manipulated the order in which the more general monetary valuation judgments and the more specific product perception ratings were solicited. Because this study is a direct replication and conceptual extension of Study 2, we will report it briefly.

A total of 159 participants were put into either a more relaxed state or a less relaxed state and then presented with the same camera-bidding scenario and monetary valuation task as in Study 2. In one condition, replicating Study 2, participants provided their monetary valuations of the camera *before* rating it on specific dimensions (e.g., ease of use, features). It was expected that in this condition more-relaxed participants would provide higher monetary valuations than less-relaxed participants, as in Study 2. In the other condition, participants provided their monetary valuations of the camera *after* rating it on the same specific dimensions. It was expected that in this condition the effects of relaxation on monetary valuations would be weaker. This is because rating the product on specific dimensions first should bring both the more-relaxed and less-relaxed participants down to a more concrete level of product representation before making their monetary valuation judgments.

A two-way ANOVA of participants' maximum bids revealed the predicted relaxation-by-order interaction ( $F(1, 155) = 3.83, p = .05$ ; see Table 3).<sup>v</sup> As illustrated in Figure 1, when monetary valuation was assessed first, participants in the more relaxed condition offered higher bids ( $M = \$2,419$ ) than participants in the less relaxed condition ( $M = \$2,174; F(1, 155) = 6.17, p < .02, \omega^2 = .07$ ), replicating the results of Study 2. However, when specific product perceptions

were measured first, participants offered comparable bids in the more relaxed condition ( $M = \$2,111$ ) and in the less relaxed condition ( $M = \$2,104$ ;  $F < 1$ ). As summarized in Table 3, estimates of the product's worth exhibited a parallel pattern. Consistent with Study 2, product perceptions were largely unaffected across relaxation conditions.

The fact that merely assessing the product on specific dimensions prior to judgments of monetary value strongly attenuated the effect of relaxation on monetary valuation is consistent with the notion that this effect may be due to different levels of representation of the product by more-relaxed and less-relaxed individuals. Once more-relaxed individuals are prompted to think about the product at a more concrete level, their valuations return to a level comparable to that of less-relaxed individuals. More direct evidence of this proposed explanation is provided in the next two studies.

It is also interesting to note that the effects of the order manipulation on monetary valuations were stronger among more-relaxed participants than among less-relaxed participants (see Figure 1). This asymmetry suggests that it is the representations of the more-relaxed participants that are affected by this manipulation, and not those of the less-relaxed participants. This in turn suggests that the monetary valuation effects of relaxation are likely driven by a positive shift in valuations among more-relaxed individuals rather than a negative shift in valuations among less-relaxed individuals. Additional evidence consistent with this interpretation is provided in Study 4.

#### *STUDY 4*

A standard methodological approach for assessing the role that a presumed mediating variable plays in a causal chain is to manipulate this variable to test whether variation in this variable moderates the link between the independent variable and the dependent variable. This is

known as the moderation-of-process strategy for testing mediation (Spencer, Zanna, and Fong 2005). As explained by Spencer et al. (2005), this strategy is especially effective when the hypothesized mediating construct—here, level of construal of the product's value—is not easy to measure but is relatively easy to experimentally manipulate. Consistent with this approach, this study examines whether the priming of a higher or lower level of construal moderates the effects of relaxation on monetary valuation. If the effect of relaxation on monetary valuation is indeed due to higher levels of representation, then the priming of an abstract level of thinking should amplify this effect by reinforcing relaxed individuals' tendency to represent the value of products at a higher level. Conversely, the priming of a lower level of construal should attenuate this effect by inhibiting relaxed individuals' tendency to represent products at a higher level.

### *Method*

*Design and procedure.* A total of 199 participants were randomly assigned to the conditions of a  $2 \times 2$  between-subjects design. The first factor manipulated relaxation as in the previous studies. The second factor primed different levels of construal (higher vs. lower). Participants were told that they would be participating in three separate studies. The “first” study served as the guise for the priming of different levels of construal. The “second” study manipulated relaxation. The “third” study consisted of the same camera-bidding task in Studies 2 and 3. (The order of the measures was the same as in Study 2, with the monetary valuation measures administered first.)

*Priming of level of construal.* Different levels of construal were primed using a procedure developed by Fujita, Trope, Liberman, and Levin-Sagi (2006). Participants in the high-level construal condition were given a list of 40 items such as *fruit* and *magazine* and asked to identify a higher-order category that each item belonged to. They provided their answers by filling in the

blanks of statements in the form of “Pasta is an example of \_\_\_\_\_.” Participants in the low-level construal condition were given the same list of items and asked to identify a lower-order category that would belong to each item. They provided their answers by filling in the blanks of statements in the form of “An example of pasta is \_\_\_\_\_.” To lessen the chance that the relaxation manipulation in the “second” study would weaken the construal manipulation (and vice versa), the 40 items were split into two halves. Participants responded to half of the items before the relaxation manipulation and half of the items after the relaxation manipulation. As a cover story for the splitting the task, participants were told that they would receive a break between the first and second half of the task, during which they would watch a video and answer some questions about it.

### *Results*

*Preliminary analyses.* Once again, relaxation scores were higher among participants in the more relaxed condition than among participants in the less relaxed condition. This was true both immediately following the video ( $M_{\text{More relaxed}} = 5.91$  vs.  $M_{\text{Less relaxed}} = 4.87$ ;  $F(1, 195) = 51.25, p < .001$ ), as in the previous studies, and at the end of the experiment where relaxation was again assessed on two items (“not relaxed at all/very relaxed” and “not calm at all/very calm”;  $\alpha = .83$ ;  $M_{\text{More relaxed}} = 4.88$  vs.  $M_{\text{Less relaxed}} = 4.54$ ;  $F(1, 195) = 3.88, p < .05$ ). Neither the main effect of priming of construal nor the relaxation  $\times$  priming interaction was significant ( $p$ 's  $> .24$ ). Again, there were no effects of the relaxation manipulation on the valence of participants' affective states either immediately after viewing the video ( $M_{\text{More relaxed}} = 4.01$  vs.  $M_{\text{Less relaxed}} = 4.03$ ;  $F < 1$ ), as in the previous studies, or at the end of the experiment where participants' mood was assessed on two items (“in a bad mood/in a good mood” and “unhappy/happy”;  $\alpha = .90$ ;  $M_{\text{More relaxed}} = 4.47$  vs.  $M_{\text{Less relaxed}} = 4.21$ ;  $F(1, 195) = 1.92, p = .17$ ). Neither the main effect of

priming of construal nor the relaxation  $\times$  priming interaction was significant ( $F$ 's  $< 1$ ). The effectiveness of the construal priming manipulation was assessed as in Fujita et al. (2006), confirming that participants in the high-level construal condition did relate the target words to superordinate concepts ( $M = 37.27$ ), whereas those in the low-level construal condition related the same words to subordinate concepts ( $M = -38.41$ ,  $F(1,195) = 48,192.18$ ,  $p < .001$ ). There was no main effect of relaxation and no relaxation  $\times$  priming interaction ( $F(1,195) = 2.98$ ,  $p = .09$  and  $F < 1$ , respectively). As in Studies 2 and 3, task involvement was equivalent across conditions (all  $F$ 's  $< 1$ ).

*Effects on monetary valuation.* The mean maximum bids in each condition, as well as the means for the other dependent measures, are reported in Table 4. An ANOVA of these bids revealed a main effect of primed construal ( $F(1,195) = 7.61$ ,  $p < .01$ ): Participants in the higher-level construal condition bid higher ( $M = \$2,303$ ) than participants in the lower-level construal condition ( $M = \$2,130$ ). This main effect of construal priming is consistent with the part of our explanation that links higher monetary valuations to higher levels of construal. There was also a main effect of relaxation ( $F(1,195) = 10.72$ ,  $p < .001$ ,  $\omega^2 = .04$ ): again participants bid higher in the more relaxed condition ( $M = \$2,341$ ) than in the less relaxed condition ( $M = \$2,115$ ). Importantly, these main effects were qualified by a significant relaxation  $\times$  priming interaction ( $F(1,195) = 5.64$ ,  $p < .02$ ; see Figure 2). When participants were primed with a higher level of construal, those who were more relaxed were willing to bid significantly more ( $M = \$2,515$ ) than those who were less relaxed ( $M = \$2,128$ ;  $F(1,195) = 16.34$ ,  $p < .001$ ,  $\omega^2 = .12$ ). However, when participants were primed with a lower level of construal, those who were more relaxed were not willing to bid more ( $M = \$2,163$ ) than those who were less relaxed ( $M = \$2,101$ ;  $F < 1$ ). This interaction pattern is consistent with the notion that relaxed individuals have higher

monetary valuations of products (at least in part) because they construe these products at a higher level of abstraction. As in Studies 2 and 3, there were no main or interaction effects of the manipulations on participants' perceptions of the likelihood that their bids would be accepted ( $p$ 's > .11).

Participants' estimates of the product's worth exhibited a parallel pattern (see Table 4). Again, participants in the more relaxed condition perceived the product to be worth more ( $M = \$2,321$ ) than did participants in the less relaxed condition ( $M = \$2,053$ ;  $F(1,195) = 14.93$ ,  $p < .001$ ,  $\omega^2 = .05$ ); and participants in the higher-level construal condition perceived the product to be worth more ( $M = \$2,314$ ) than did participants in the lower-level construal condition ( $M = \$2,030$ ;  $F(1,195) = 19.46$ ,  $p < .001$ ). Again, a significant relaxation  $\times$  priming interaction ( $F(1, 195) = 9.12$ ,  $p < .01$ ) indicated that when participants were primed with a higher level of construal, those who were more relaxed perceived the product to be worth more ( $M = \$2,576$ ) than did those who were less relaxed ( $M = \$2,099$ ;  $F(1, 195) = 24.80$ ,  $p < .001$ ,  $\omega^2 = .18$ ). In contrast, when participants were primed with a lower level of construal, those who were more relaxed did not perceive the product to be worth more ( $M = \$2,061$ ) than did those who were less relaxed ( $M = \$2,003$ ;  $F < 1$ ).

*Effects on product perceptions.* Separate ANOVAs were performed on each of the four product attribute ratings (see Table 4). None of the main effects of relaxation was significant (the  $p$ -values for ease of use, features, looks, and convenience were .54, .40, .11, and .49, respectively). There were no main effects of primed construal on any of these ratings ( $p$ 's > .18) and no relaxation  $\times$  primed construal interaction ( $p$ 's > .14). Thus, as in Studies 2 and 3, relaxation had little effect on specific product perceptions.

### *Discussion*

This study replicates once more the basic finding that states of relaxation increase monetary valuation compared to equally pleasant but less relaxed states. Moreover, the study provides further evidence that this phenomenon may be driven by differences in how relaxed individuals and less-relaxed individuals mentally represent the value of the product. Two findings support this explanation. First, participants who were primed with a higher level of construal had higher monetary valuations than those who were primed with a lower level of construal. This finding is consistent with the part of our general theoretical explanation that links higher monetary valuations to higher levels of construal. More importantly, it was found that priming a higher level of construal, which should theoretically exaggerate the effect of relaxation on representation, indeed magnified the effect of relaxation on monetary valuation. For example, in this study, when a higher level of construal was primed, the size of the relaxation effect on participants' bids was  $\omega^2 = .12$ . By comparison, in Study 2 the size of this effect was  $\omega^2 = .09$ ; and in Study 3 the size of this effect was  $\omega^2 = .07$  in the monetary-valuation-first condition. In contrast, priming a lower level of construal, which should theoretically disrupt the effect of relaxation on representation, greatly attenuated the effect of relaxation on monetary valuations. Therefore, by using a construal-priming procedure to directly manipulate the presumed mediator of the relationship between relaxation and monetary valuation, we were able to either amplify or attenuate this relationship. As explained by Spencer et al. (2005), under the logic of moderation-of-process designs for testing mediation, such a pattern of findings supports the proposed causal chain: relaxation  $\rightarrow$  higher construal  $\rightarrow$  higher monetary valuation.

Whereas our main predictions focused on the simple effects of relaxation when a higher level of construal was primed compared to when a lower level of construal was primed, it is also interesting to examine the simple effects of construal priming for each level of relaxation. As

illustrated in Figure 2 (see also Table 4), whereas the level of construal primed influenced relaxed participants' valuations significantly, it did not influence less-relaxed participants' valuations. This pattern of results is consistent with the pattern observed in Study 3. It seems to suggest that it is the representations of the more relaxed participants that are affected, not those of the less relaxed participants. This in turn would suggest that the monetary valuation effects of relaxation are likely driven by a positive shift in valuations among more-relaxed individuals rather than a negative shift in valuations among less-relaxed individuals.

One may wonder why the concrete-construal priming was more effective in bringing the monetary valuations of more-relaxed participants downwards than the abstract-construal priming was in bringing the monetary valuations of less-relaxed participants upwards. Because higher levels of construal generally arise from a loss of representational detail that usually comes with time and distance (Liberman, Trope, and Stephan 2007), we speculate that in situations such as in this study where concrete stimulus information (the product's attribute description) was available to all participants, it is generally easier to bring higher-level-of-construal individuals down to a more concrete level of thinking than it is to bring lower-level-of-construal individuals up to a more abstract level of thinking. This asymmetry in ease of movement is consistent with the finding that higher-level considerations are generally considered before lower-level considerations are ("big-picture first, details next"), rather than the reverse—a notion known as asymmetric conditional importance (Eyal et al. 2004; Sagristano, Trope, and Liberman 2002). For example, in gambles people typically examine payoffs (which have been shown to be higher-level considerations) before they examine probabilities (which have been shown to be lower-level considerations) (Sagristano et al. 2002). Similarly, in evaluating courses of actions, people typically examine the pros (which have been found to be higher-level considerations) before they

examine the cons (which have been found to be lower-level considerations) (Eyal et al. 2004). Therefore, considering the sequence in which higher and lower-level of representations are typically accessed, it is possible that once less-relaxed participants saw the product and its attributes, it might have been difficult for them to abstract away from these concrete considerations, even after completing the abstract-construal-priming task. As shall be demonstrated in the next study, relaxation does result in different levels of construal of a product's value.

### STUDY 5

The purpose of this study was to provide more direct process evidence for our construal-level explanation of the phenomenon. Again participants who were induced into a relaxed or less-relaxed state were asked for their monetary valuations of a digital camera. Unlike in the previous studies, in this study after reporting their monetary valuations participants were additionally asked to report on the extent to which they engaged in abstract- and concrete-level thinking when assessing their monetary valuations. It was predicted that relaxed participants would report more abstract-level thinking and less concrete-level thinking than less-relaxed participants.

#### *Method*

One hundred and twenty Singaporean undergraduates were induced into either a more-relaxed or a less-relaxed state through the same video manipulation used in the previous studies. They were then presented with the camera bidding task. After reporting their maximum bid for the camera and their estimates of how much it was worth, participants answered four questions designed to capture their level of thinking when assessing the monetary value of the camera. The four questions were intermixed, and responses were assessed on a 1 (not at all) to 7 (very much)

scale. Two questions focused on abstract-level thinking: “to what extent did you think about ‘why you might want this camera?’” and “to what extent did you think about ‘capturing moments, objects, or faces’ with it?” ( $\alpha = .74$ ). Responses were averaged to form an abstract-thinking score. Two questions focused on concrete-level thinking: “to what extent did you think about how useful each specific feature of the camera was (e.g., number of pixels, zoom, LCD display, shutter speed, image format, flash etc.)’?” and “to what extent did you think about ‘how to take good pictures with it?’” ( $\alpha = .70$ ). Responses were averaged to form a concrete-thinking score. Perceptions of the camera’s features were assessed as in the previous studies, again showing no effects of relaxation. The same manipulation check for relaxation and confounding checks for pleasantness, involvement, and evaluations of the video as in the previous studies were administered and assessed. Only the check for relaxation was significant.

## Results and Discussion

*Effects on monetary valuation.* Again, participants in the more-relaxed condition bid higher and estimated the camera to be worth more than did participants in the less-relaxed condition ( $M_{\text{Bid}} = 635$  vs.  $583$ ;  $F(1,118) = 6.24$ ,  $p < .02$ ,  $\omega^2 = .04$ ;  $M_{\text{Worth}} = 615$  vs.  $558$ ,  $F(1, 118) = 5.97$ ,  $p < .02$ ,  $\omega^2 = .04$ ).

*Effects on level of thinking.* A mixed ANOVA of the abstract- and concrete-thinking scores, with relaxation as a between-subjects factor and level of thinking as a repeated factor, revealed a significant interaction between relaxation and level of thinking ( $F(1, 118) = 37.50$ ,  $p < .001$ ). As expected (see Figure 3), abstract-thinking scores were higher in the more-relaxed condition ( $M = 5.40$ ) than in the less-relaxed condition ( $M = 4.12$ ;  $F(1, 118) = 21.33$ ,  $p < .001$ ). In contrast, concrete-thinking scores were lower in the more-relaxed condition ( $M = 4.33$ ) than in the less-relaxed condition ( $M = 4.95$ ;  $F(1, 118) = 9.40$ ,  $p < .01$ ). Hence, relaxation does seem to

trigger a higher level of thinking and representation when assessing the monetary value of a product.

*Mediation analysis.* To verify that a difference in level of thinking was indeed responsible for the valuation effect of relaxation, a thinking differential index was constructed by subtracting participants' concrete-thinking score from their abstract-thinking score. When this index was entered as a covariate in ANCOVAs of participants' bids and perceived worth, two findings emerged. First, this covariate was a significant predictor of both bid ( $F(1, 116) = 36.03, p < .001$ ) and perceived worth ( $F(1, 116) = 28.36, p < .001$ ). More importantly, controlling for this covariate completely removed the effects of relaxation on both bid and perceived worth ( $F's < 1$ ), providing yet another piece of evidence that the effects of relaxation on monetary valuations are driven by differences in level of construal.

## STUDY 6

One limitation of the previous studies is that they were all based on a single manipulation of relaxation. This singularity of method raises the possibility that something about the method itself rather than relaxation per se was the real driver of the observed effects. For example, given that the relaxing video consisted of scenes of nature, whereas the control video consisted of man-made settings, the former may have required less attentional resources than the latter (Berman, Jonides, and Kaplan 2008), leaving more resources for abstract thinking. It may also be that explicit instructions to relax in the relaxing video subtly encouraged participants to "let go" of things, including concerns about money, thereby increasing their willingness to pay. To examine these alternative explanations, this study used a purely musical manipulation of relaxation—a manipulation that contains no visual content and no explicit instructions to relax.

A second objective was to further investigate the generalizability of the effects. Although in the previous studies the effect of relaxation on monetary evaluation was observed across multiple product categories, the range of product categories to which this effect extends is not clear. For example, a natural question is whether the effect is more likely to be observed for products that are inherently relaxing (e.g., a spa, a cruise) than for products that are nonrelaxing/higher-activity (e.g., gym membership, bungee jumping), in a pattern that would be consistent with an affect-as-information effect (Kim et al. 2009; Pham 2004; Schwarz and Clore 1983). One may also wonder whether the effect extends to indulgence-type products whose consumption could lead to subsequent regret (e.g., an unhealthy desert, alcohol). To address these generalizability issues, Study 6 tests the effects of relaxation on three types of products: (a) products that are generally considered to be relaxing; (b) products that are generally considered to be nonrelaxing/higher-activity; and (c) products that are generally considered to be indulgences.

#### Method

*Design and procedure.* The design of this experiment was a 2 (relaxation: more or less) × 3 (product type: relaxing, nonrelaxing/higher-activity, indulgence) mixed design, with relaxation as a between-subjects factor and product-type as a within-subject factor. Under the guise of a study on how in-store atmospheric factors influence product perceptions, 97 Singaporean undergraduates listened to a piece of music that was either more relaxing or less relaxing for five minutes. They then rated the music and indicated how it made them feel. Next, after the music was lowered to 10 percent of its original volume (so that it would not be distracting), participants were asked to assess the monetary value of 15 products (5 of each of the three major types). Participants made these assessments by selecting one of five possible price points for each

product (converted to a 1–5 scale). To investigate the possibility that the effects of relaxation on monetary valuations are due to a lower pain of payment among relaxed individuals, we then gave participants a suggested price for each product and asked them to indicate on a seven-point scale how much it would bother them to pay that price. Next, as manipulation checks for product-type, participants were asked to indicate the degree to which each product was (a) relaxing, (b) exciting, (c) typically consumed on impulse, and (d) tempting but not good if consumed in excess. Finally, to verify that the manipulation of relaxation lasted throughout the various rating tasks, participants were asked to rate how relaxed they were and how pleasant they felt on seven-point scales.

*Music manipulation of relaxation.* Similar to the pretesting done to select the videos, a series of pretests was conducted to identify two instrumental pieces of music that would differ in terms of level of relaxation induced but be equivalent in terms of pleasantness. In a final pretest, 83 participants were asked to listen to one of the two pieces of music for five minutes, and then indicate how they were feeling on a series of seven-point scales that included three relaxation items (relaxed, calm, serene;  $\alpha = .84$ ) and three pleasantness items (happy, joyful, pleasant;  $\alpha = .82$ ). Participants who listened to the more-relaxing piece reported being more relaxed ( $M = 5.50$ ) than participants who listened to the less-relaxing piece ( $M = 4.63$ ;  $(F(1, 81) = 8.29, p < .01)$ ). However, participants reported feeling equally pleasant in the two conditions ( $M = 4.41$  vs.  $4.44$ , for more-relaxed and less-relaxed, respectively;  $F < 1$ ).

*Product types.* To identify relaxing-type, nonrelaxing/higher-activity-type and indulgence-type products, 95 pretest participants were asked to rate 27 products in terms of whether these products were (a) generally relaxing, (b) generally bought on impulse, and (c) could have negative long-term consequences. This pretest led to the selection of five relaxing-

type products (a cruise, a spa treatment, a massage chair, a four-day vacation in Tahiti, aroma candles), five nonrelaxing-type products (a gym membership, bungee jumping sessions, an entrance ticket to a nightclub, tickets to a water park, an energy drink), and five indulgence-type products (a casino membership, a bottle of vodka, an ice-cream sundae, a bag of potato chips, and a slice of cheesecake). In the main study, these products were intermixed and presented in one of two random sequences (which did not moderate the results).

## Results and Discussion

*Preliminary analyses.* After listening to the music for five minutes, and before the monetary valuation task, participants reported being more relaxed in the more relaxing music condition ( $M = 5.72$ ) than in the less relaxing music condition ( $M = 4.68$ ,  $F(1, 95) = 27.02$ ,  $p < .001$ ), but they felt equally pleasant across conditions ( $M = 4.71$  and  $4.93$ , respectively;  $F(1, 95) = 1.39$ ,  $p > .25$ ). Similar ratings collected at the end of the study exhibited the same pattern. A series of mixed ANOVAs confirmed that (a) relaxing products were judged to be more relaxing ( $M = 4.50$ ) than either nonrelaxing/higher-activity products ( $M = 2.75$ ;  $F(1, 95) = 305.35$ ,  $p < .001$ ) or indulgence products ( $M = 3.21$ ;  $F(1, 95) = 221.11$ ,  $p < .001$ ); and (b) nonrelaxing/higher-activity products were judged to be more exciting ( $M = 4.23$ ) than either relaxing products ( $M = 3.13$ ;  $F(1, 95) = 244.54$ ,  $p < .001$ ) or indulgence products ( $M = 3.48$ ;  $F(1, 95) = 109.21$ ,  $p < .001$ ). Indulgence products were judged to be more typically consumed on impulse ( $M = 4.37$ ) than either relaxing products ( $M = 2.48$ ;  $F(1, 95) = 415.41$ ,  $p < .001$ ) or nonrelaxing/higher-activity products ( $M = 2.84$ ;  $F(1, 95) = 456.37$ ,  $p < .001$ ); the former were also judged to be more “tempting but not good if consumed in excess” ( $M = 4.26$ ) than either relaxing products ( $M = 2.59$ ;  $F(1, 95) = 380.33$ ,  $p < .001$ ) or nonrelaxing/higher-activity products ( $M = 3.30$ ;  $F(1, 95) = 129.10$ ,  $p < .001$ ).

*Perceived monetary worth.* A 2 (relaxation)  $\times$  3 (product type) mixed ANOVA of 15 products' monetary worth scores uncovered a main effect of product type ( $F(2, 190) = 17.97, p < .001$ ), which was not of theoretical interest. More importantly, there was again a main effect of relaxation ( $F(1, 95) = 11.19, p < .002; \omega^2 = .05$ ). As in the previous studies, monetary valuations were higher in the more relaxed condition ( $M = 2.82$ ) than in the less relaxed condition ( $M = 2.48$ ), suggesting that the effects are not limited to the specific manipulation of relaxation used in the previous studies. Interestingly, the effect of relaxation was not qualified by an interaction with product type ( $F < 1$ ), suggesting that relaxation is equally likely to increase the monetary valuations of relaxing products, nonrelaxing/higher-activity products, and indulgence products (see Table 5).<sup>vi</sup> The finding that the effects of relaxation were largely parallel for relaxing and nonrelaxing products seems to suggest that these effects are not due to affect-as-information-like evaluative inferences. The finding that the effects do not completely disappear or reverse for indulgence products seems to suggest that a greater attention to desirability is not the sole driver of these effects; a tendency to relate the product to higher-order goals and focus on advantages rather than disadvantages may be at work as well.

*Pain of payment.* A 2  $\times$  3 mixed ANOVA of how bothered participants would be if they had to pay the price that was suggested to them for each product revealed a main effect of product type ( $F(2, 190) = 17.97, p < .001$ ), which again was not of theoretical interest in this research. More importantly, there was no main effect of relaxation ( $F < 1$ ) and no relaxation  $\times$  product type interaction ( $F < 1$ ). This suggests that the effects of relaxation on monetary valuation are not due to relaxed individuals experiencing a lower pain of payment.

## GENERAL DISCUSSION

Marketers often try to create states of relaxation, yet the effects of relaxation on consumers have received very little attention. While it is obvious that states of relaxation are pleasant, our research indicates that they have additional effects of marketing importance. Specifically, states of relaxation increase consumers' monetary valuations of products compared to equally pleasant but less relaxed states. This effect was observed in six different studies using various measures of monetary valuation across a wide range of products. As observed in Study 6, this effect holds as much for products that are nonrelaxing as it does for products that are relaxing, and even holds for indulgence products whose consumption might sometimes be regretted later. This effect has obvious marketing implications. Everything else being equal, consumers will be willing to pay higher prices if marketers are able to relax them first. This may partly explain why luxury products and services (luxury hotels, high-end boutiques, first-class lounges, etc.) are typically provided in relaxing environments.

The robust effect of relaxation on monetary valuations observed in this research seems to be due to relaxed individuals having higher-level construals of value for products. When assessing the monetary value of products, relaxed individuals tend to think of higher-order benefits and goals that might be fulfilled by having and using the product, whereas less-relaxed individuals tend to have lower-level construals that focus on the specific characteristics of the product itself. Two types of findings support this interpretation. First, it was found that the effect of relaxation on monetary valuations is eliminated when relaxed participants are encouraged to think of the product's value at a more concrete level—whether it is by having them rate the specific characteristics of the product before assessing its monetary value (Study 3), or by priming more concrete-level thinking (Study 4). More direct process evidence comes from the

finding that more-relaxed participants reported more abstract thinking and less concrete thinking than less-relaxed participants—a difference that statistically mediated the effect of relaxation on monetary valuations (Study 5).

The effect cannot be explained in terms of mood-congruent evaluation, because the experimental conditions were consistently equated in terms of pleasantness of affective states. Nor does the effect appear to be due to the specifics of the relaxing video used in the first five studies. It may be argued that compared to the control video, the nature scenes in the relaxing video required less attentional resources (Berman et al. 2008), leaving more resources for abstract thinking during monetary valuation. It is also possible that explicit instructions to relax in the relaxation video encouraged participants to “let go” of things, causing them to become less concerned about money. The finding in Study 6 that a purely musical manipulation of relaxation produces the same effect suggests that the findings were not specific to the relaxing video used in this research.

Given that relaxation can reduce physical pain (e.g., Krout 2001), another explanation may be that relaxed individuals experienced a lesser pain of payment for the products, which could account for their higher monetary valuations. The fact that in Studies 1 and 6 relaxation had similar effects on simple judgments of monetary worth—judgments that involved no presumption of purchase and payment—suggests that a reduced-pain-of-payment explanation is not sufficient. Moreover, in Study 6 more-relaxed participants reported being no less bothered to pay the prices that were suggested to them for the various products than did less-relaxed participants.

A final alternative explanation is that relaxation decreases task involvement, leading to more heuristic processing, which in turn would lead to higher valuations. This explanation would

be consistent the finding that high arousal and anxiety (and presumably low relaxation) encourages a more diagnostic processing of information (Pham 1996). However, the data do not seem to support this explanation. First, in the studies where involvement was measured (Studies 2 to 5), participants were found to be equally involved across relaxation conditions. Second, in Study 6, the amount of time that participants took to do the monetary valuation task was recorded: more-relaxed and less-relaxed participants took virtually the same amount of time ( $M = 692$  sec vs.  $686$  sec, respectively;  $F < 1$ ).

One may wonder whether the main finding is due to more-relaxed individuals *inflating* their valuations or less-relaxed individuals *deflating* them. Two lines of evidence suggest that it is the former. The first line of evidence comes from comparing the monetary values that participants assigned to the camera to its actual market price. In Studies 2 through 4, the camera manufacturer's suggested retail price (MSRP) was HK\$2,700. At the time the studies were conducted, comparable cameras sold on eBay at 75.2 percent of their MSRP, putting the camera's eBay market value at \$2,030. This number was close to the valuations of less-relaxed participants (which were around HK\$2,100) and was substantially lower than those of more-relaxed participants (which were in the HK\$2,400–HK\$2,500 range; see Tables 2–4). Similar results were found for Study 5 conducted in Singapore, where the estimated eBay price of the camera was SG\$549, whereas more-relaxed participants' valuations were in the range of SG\$615–SG\$635 and less-relaxed participants' valuations were in the range of SG\$558–SG\$583.

The second line of evidence is based on the pattern of finding in Studies 3 and 4, in which only the relaxed participants were affected by manipulations of levels of representation of the product, whereas the less-relaxed participants were unaffected (see Figures 1 and 2). This asymmetry suggests that it is the relaxed participants, not the less-relaxed participants, who had

different representations of the product's value when being put into these particular states. This suggests that it was the relaxed participants who had more abstract representations than they would otherwise, and as a result had higher monetary valuations. Once these participants were induced to think more concretely about the product's value, the effect of relaxation dissipated.

Looking forward, two research questions deserve particular attention. First, given our main primary finding that relaxation increases monetary valuation compared to states of lower relaxation (holding the pleasantness of the state constant), one wonders what would happen at the opposite end of the continuum. Would states of higher stress decrease monetary valuations compared to states of lower stress (a continuation of the trend observed in our research), or would the effect be qualitatively different? It is possible that when the full relaxation-to-stress continuum is considered, the relation between this continuum and monetary valuation is non monotonic. The prediction is not obvious and would warrant further investigation. Second, it should be noted that all our studies were conducted among Asian participants in Hong Kong and in Singapore. While our conceptualization of the phenomenon is not culture-specific, it is possible that this phenomenon does not generalize beyond Asian cultures. For example, it is conceivable that our results may have been influenced in part by the fact that dominant religions and philosophies in Asia tend to play a strong emphasis on the virtues of calmness and meditation. It has also been observed that Chinese individuals tend to be chronically more anxious and thus less relaxed than Caucasian individuals (Dong, Leong, Feng 2008). We leave it to future research to examine the cross-cultural generalizability of our findings.

On a more general note, common wisdom holds that relaxation should generally improve decision making. However, to the extent that consumers should not overestimate the value of products they are considering purchasing, it may sometimes be disadvantageous for consumers

to be more relaxed. Moreover, while our findings pertain to the effects of relaxation in particular, it is possible that *any* factor that induces a momentary state of decreased vigilance (e.g., sleepiness or a confidence prime) may produce a similar effect. Should this be the case, this would have obvious marketing and public policy implications.

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TABLE 1—Mean Perceived Worth (High Numbers Indicating Higher Perceived Worth) for each product as a function of State Relaxation (Study 1)

	More relaxed (n = 21)	Less Relaxed (n = 24)	Difference (More relaxed – Less relaxed)
Backpack	3.24	2.63	+0.61*
Crystal Tulip	3.33	3.17	+0.16
Digital Gauge for Car Tires	3.81	3.21	+0.60*
LCD Monitor	4.62	4.08	+0.54*
Magazine Rack	1.86	1.71	+0.15
Paper Shredder	2.19	1.58	+0.61*
Picture Frame	1.57	1.08	+0.49*
Scarf	1.76	1.17	+0.59*
Tennis Racquet	1.57	1.54	+0.03
Vacuum Cleaner	2.19	2.08	+0.11
Mean across products	2.61	2.23	

Note: \* Significant difference at  $p < .05$

TABLE 2—Mean Monetary Values and Product Attribute Ratings as a Function of Affective States of Relaxation (Study 2)

	Relaxation (n = 26)	Non-Relaxation (n = 25)
Monetary Valuation		
Maximum Bid	2550.00	2292.68
Perceived Worth	2600.00	2288.00
Product Attribute Ratings		
Ease of Use	1.73	1.44
Features	1.92	1.16
Look	1.62	0.92
Convenience	1.62	1.68

TABLE 3—Mean Monetary Values and Product Attribute Ratings as a Function of Affective States of Relaxation and Order of Tasks (Study 3)

	Monetary Valuation First		Product Attribute Ratings First	
	Relaxed (n = 40)	Less Relaxed (n = 42)	Relaxed (n = 37)	Less Relaxed (n = 40)
<b>Monetary Valuation</b>				
Maximum Bid	2418.78	2173.81	2110.81	2103.75
Perceived Worth	2388.75	1966.67	2091.89	2147.50
<b>Product Attribute Ratings</b>				
Ease of Use	4.83	4.81	4.89	5.05
Features	4.30	4.71	4.73	4.83
Look	3.95	3.67	4.24	3.73
Convenience	4.80	4.91	4.68	5.03

TABLE 4—Mean Monetary Values and Product Attribute Ratings as a Function of Affective States of Relaxation and Levels of Construal Prime (Study 4)

	Abstractness Construal Prime		Concreteness Construal Prime	
	Relaxed (n = 46)	Less Relaxed (n = 56)	Relaxed (n = 45)	Less Relaxed (n = 52)
<b>Monetary Valuation</b>				
Maximum Bid	2515.22	2128.00	2163.33	2101.71
Perceived Worth	2567.09	2099.05	2061.11	2002.58
<b>Product Attribute Ratings</b>				
Ease of Use	4.89	5.00	5.24	4.91
Features	5.02	4.68	4.60	4.65
Look	4.22	4.04	4.42	3.96
Convenience	5.02	4.96	4.96	4.83

TABLE 5—Mean Perceived Worth (High Numbers Indicating Higher Perceived Worth) for each product as a function of State Relaxation (Study 6)

	More relaxed (n = 21)	Less Relaxed (n = 24)	Difference (More relaxed – Less relaxed)
<b>Relaxing Products</b>			
Cruise	2.98	2.20	+0.78*
Spa treatment	3.17	2.33	+0.84*
Massage chair	2.22	2.31	-0.09
Vacation in Tahiti	3.44	2.78	+0.66*
Aroma candles	1.27	1.44	-0.17
Mean across relaxing products	2.61	2.21	+.40*
<b>Nonrelaxing/Exciting Products</b>			
Gym membership	3.35	2.64	+.71*
Bungee jumping sessions	4.08	3.27	+.81*
Entrance to nightclub	2.81	2.71	+.10
Tickets to water park	2.00	1.93	+.07
Energy drink	2.39	2.38	+.01
Mean across nonrelaxing products	2.92	2.59	+.33*
<b>Indulgence Products</b>			
Casino membership	3.90	3.11	+.79*
Bottle of vodka	2.46	2.73	-.27
Ice cream sundae	3.00	2.49	+0.51*
Bag of potato chips	1.52	1.73	+0.11
Slice of cheesecake	3.69	3.07	+.62*
Mean across indulgence products	2.92	2.63	+.29*
<b>Mean across all 15 products</b>	2.82	2.48	+.34*

Note: \* Significant difference at  $p < .05$

Figure 1

Study 3: Effect of Relaxation and Order on Monetary Valuation (Bid)

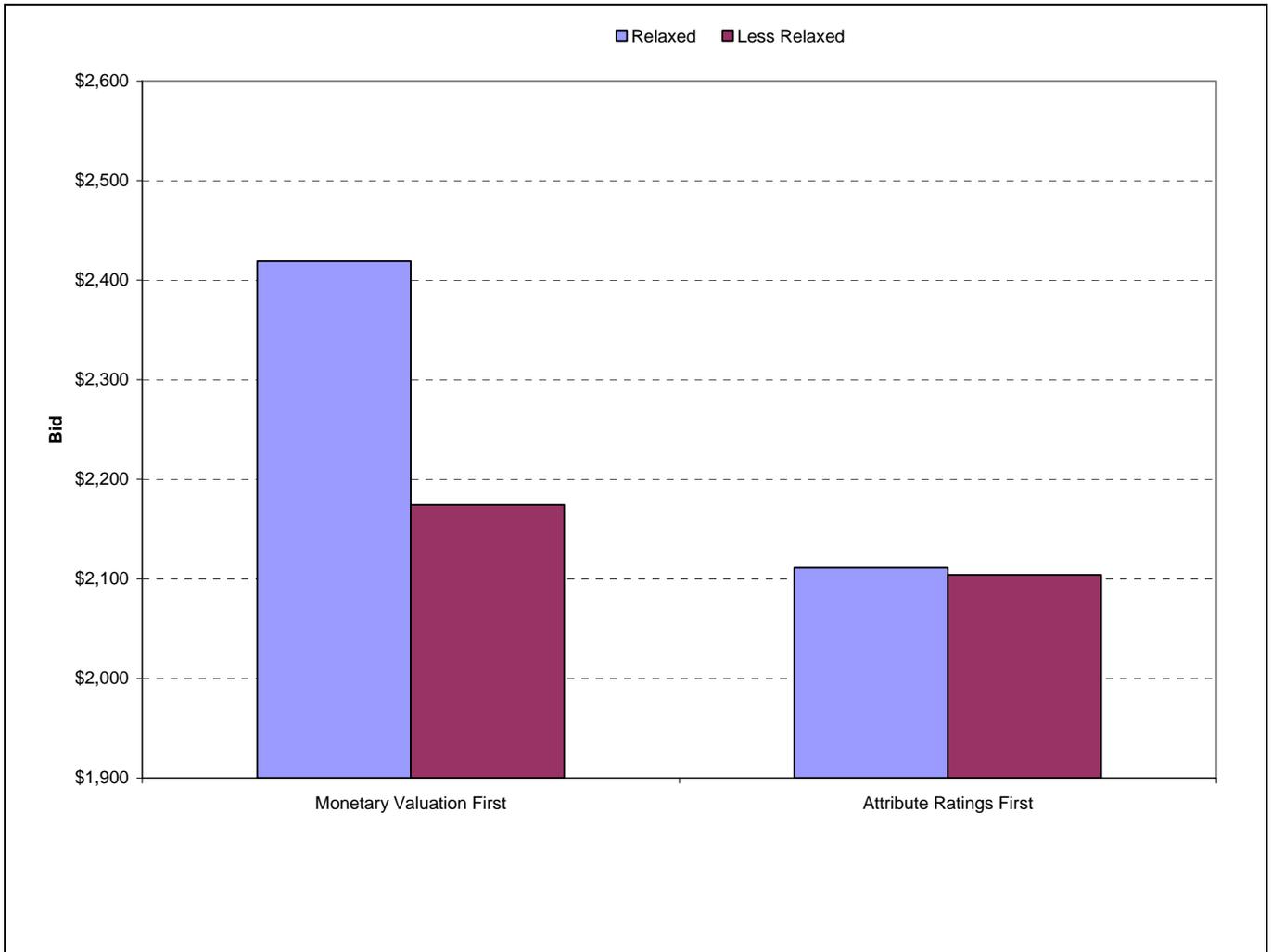


Figure 2

Study 4: Effect of Relaxation and Construal-Level Priming on Monetary Valuation (Bid)

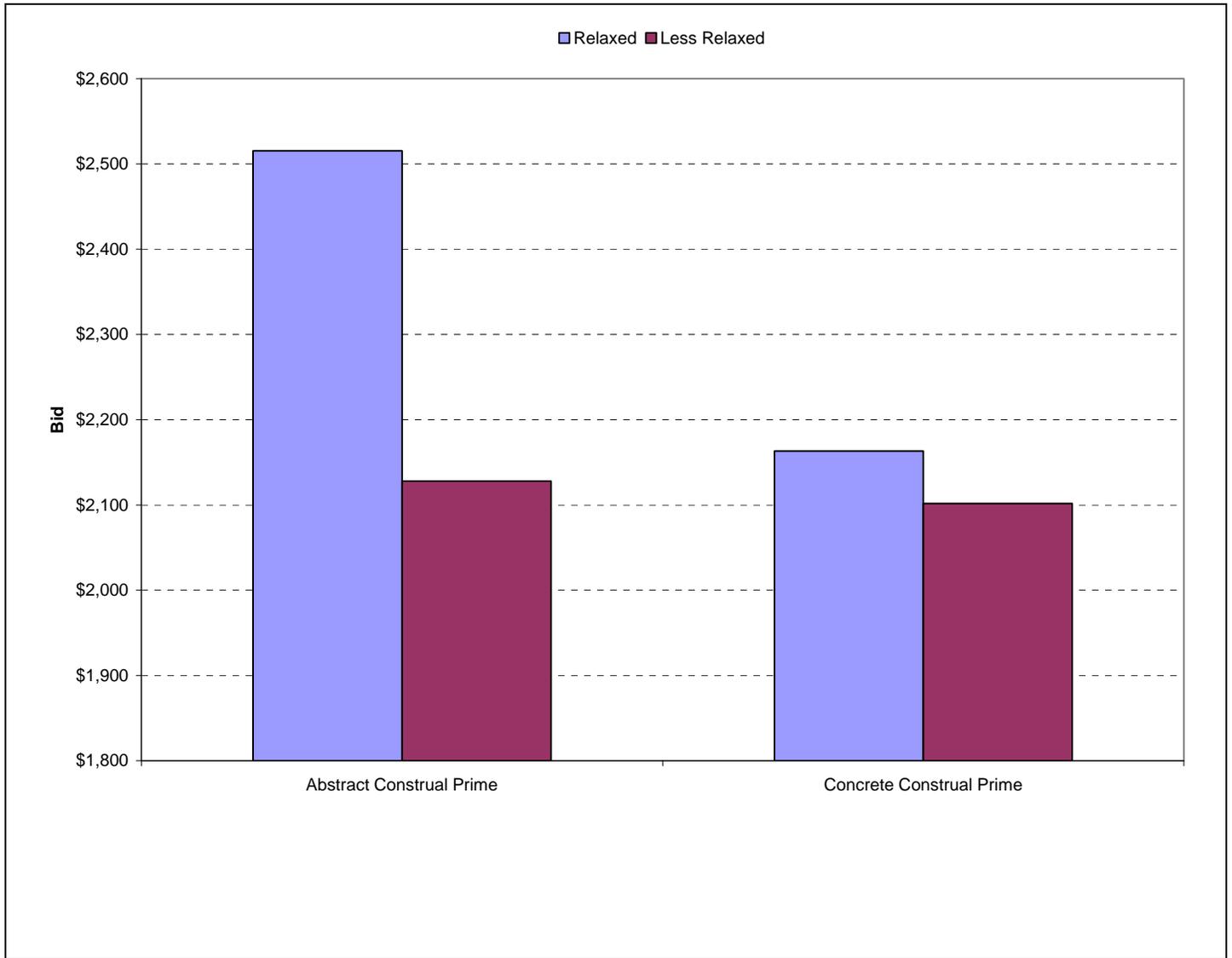
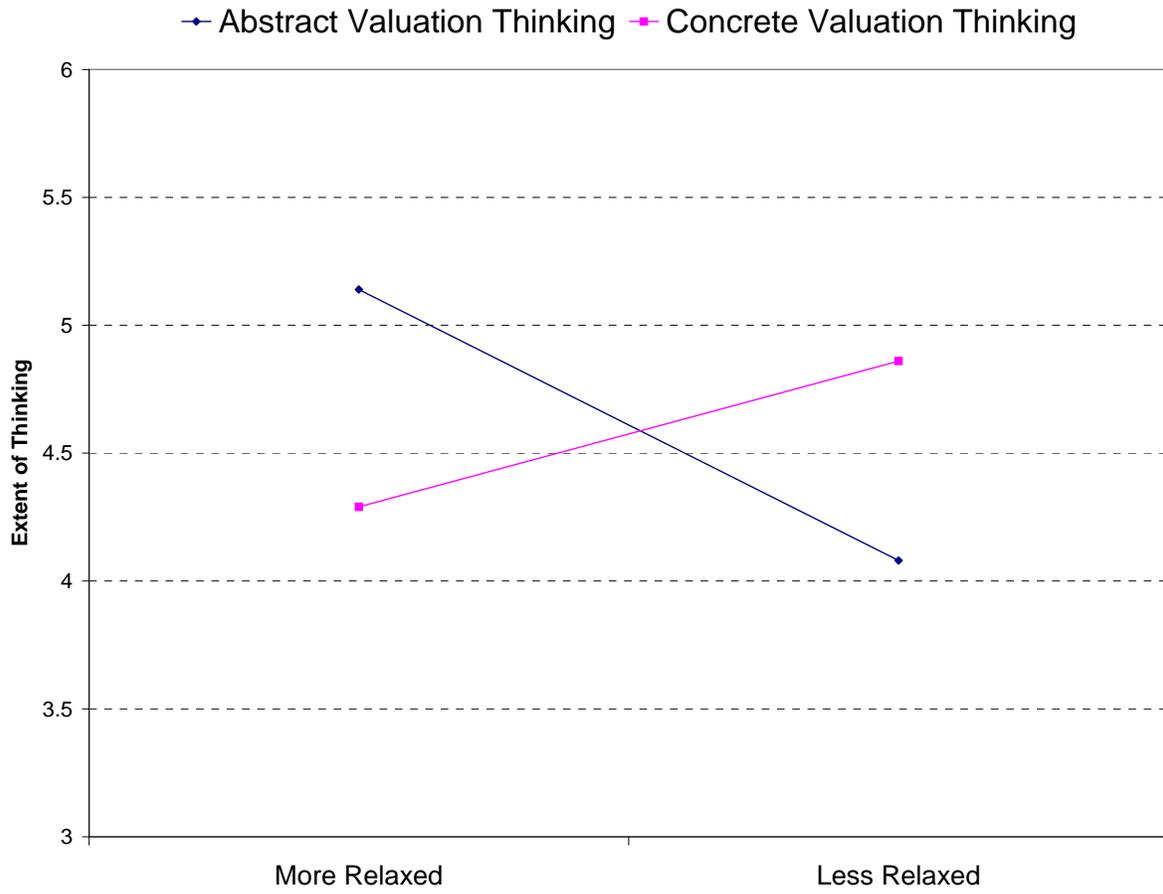


Figure 3

Study 5: Effect of Relaxation on Extent of Abstract and Concrete Valuation Thinking



## Footnotes

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<sup>i</sup> In this respect, feelings of relaxation can be distinguished from feelings of contentment in that the latter seem to be signals encouraging the savoring of one's present circumstances (Fredrickson 2001). Moreover, relaxation seems to arise from lower activation in the threat system, whereas the contentment seems to arise from greater activation in the soothing system (Gilbert et al. 2008).

<sup>ii</sup> In Spielberger's (1968) Trait-Anxiety scale, many items taken to indicate "low anxiety" are actually assessing relaxation (e.g., "I feel calm," "I am relaxed," "I feel at ease").

<sup>iii</sup> Although the 10 product monetary valuations were conceptually independent, one could argue that they were not statistically independent, in which case a MANOVA may be more appropriate. A MANOVA also revealed a significant main effect of relaxation (Hotelling  $T = 16.23$ , exact  $F(9, 35) = 63.12$ ,  $p < .0001$ ), showing that the vector of valuation was higher in the more relaxed condition than in the less relaxed condition. The product  $\times$  relaxation interaction was not significant ( $F < 1$ ). A mixed-model analysis treating the different products as a random factor also revealed a significant main effect of relaxation ( $F(1, 43) = 9.46$ ,  $p < .01$ ).

<sup>iv</sup> There were also no differences on any of these measures in the subsequent experiments. Hence these measures will not be discussed further.

<sup>v</sup> Because the distribution of bids was skewed in this study, this ANOVA was performed on log-transformed bids.

<sup>vi</sup> A mixed-model analysis treating relaxation and product type as fixed effects and product replicates as a random effect nested within product type yields similar results. The main effect of relaxation remains significant ( $F(1, 95) = 11.73$ ,  $p < .001$ ) and is not qualified by an interaction

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with product type ( $F < 1$ ). The only difference is that the main effect of product type becomes nonsignificant ( $F < 1$ ).