

# Anticipating Adaptation to Products

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Many consumer products deliver their utility over time, and the decision to purchase such products often depends on predictions of future product enjoyment. The present research shows that consumers often fail to predict hedonic adaptation to products and explores the antecedents and consequences of this misprediction. We demonstrate that the failure to predict diminishing enjoyment with a product arises because of a failure to spontaneously consider adaptation and apply correct intuitive beliefs about adaptation. We further show that making prospective duration salient can cue beliefs about hedonic adaptation. Finally, we find that these beliefs, once cued, influence choices.

Many consumer products deliver their utility over extended periods of time. However, the level of this utility often diminishes over time due to waning novelty, shifting reference points and expectations, and various other mechanisms. Moreover, this process of hedonic adaptation seems to catch people by surprise (Schwartz 2004). By hedonic adaptation, we are referring to the attenuation of affective reactions resulting from ongoing ownership and usage of a particular product. For example, imagine that after much thought, a person chooses to spend \$500 extra to buy a high-end stereo with many cutting-edge features instead of a basic model. A few months later, the initial thrill of the new stereo fades, enjoyment falls dramatically, and the person has nothing but a \$500 higher bill to show for the short-lived enjoyment of the extra features.

The purchase decision for a product with temporally extended enjoyment requires consideration of the product's utility profile integrated over its life (Kahneman and Snell 1990; Kahneman, Wakker, and Sarin 1997; Nowlis, Mandel, and McCabe 2004). In the current research, we first demonstrate that when faced with such purchase decisions, consumers often fail to predict diminishing product enjoyment over time. Moreover, we show that this failure to predict

hedonic adaptation to products arises not because of erroneous beliefs about how experienced utility changes over time but rather because of a failure to incorporate largely correct beliefs about adaptation at the moment of choice. We further show that making prospective duration salient effectively cues individuals' beliefs about hedonic adaptation, and once cued, these beliefs systematically change preferences. Participants' choices reflect a tendency to purchase more products and spend more on product features than they would have if their intuitions about hedonic adaptation were accessible at the time they made these choices.

It is important to note how our research relates to prior work on affective forecasting. Previous research suggests that people often hold inaccurate beliefs about affect progression, which in turn leads to prediction errors and sub-optimal choices (e.g., Gilbert et al. 1998; Kahneman and Snell 1992; Nelson and Meyvis 2008; Novemsky and Ratner 2003). The present research finds that even when intuitive beliefs are accurate, predictions may still diverge from actual experiences, as people frequently fail to incorporate these accurate beliefs into judgments and choices.

The remainder of the article is organized as follows. A brief review of previous research leads to the proposition that consumers fail to consider hedonic adaptation to products in purchase contexts and do not apply relevant beliefs about adaptation when predicting long-term product enjoyment. Next, in a series of experiments, we demonstrate the main proposition and show that beliefs about adaptation can be cued by prompting people to consider the duration over which they will have the product. Once cued, these beliefs markedly influence predictions of future enjoyment and, consequently, curb interest in opportunities to purchase and shift preferences away from expensive feature-rich products. We conclude by discussing directions for future research as well as implications of our findings.

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## ANTICIPATING ADAPTATION TO PRODUCTS: A CONCEPTUAL FRAMEWORK

A growing body of research has documented that hedonic adaptation to new products and changing circumstances is a ubiquitous feature of human psychology (Frederick and Loewenstein 1999). People seem to adapt quickly and completely to various positive and negative experiences, ranging from mundane pleasures (e.g., consuming one's preferred ice cream; Kahneman and Snell 1990) or discomforts (e.g., listening to the noise from a vacuum cleaner; Nelson and Meyvis 2008) to extreme windfalls or calamities (e.g., winning the lottery or becoming paraplegic; Brickman, Coates, and Janoff-Bulman 1978). However, past research has suggested that people are poor at predicting how various hedonic experiences will make them feel, particularly when these experiences are temporally extended (Kahneman 1999; Kahneman and Snell 1990).

Previous research documenting the failure to predict adaptation has primarily focused on the discrepancy between predicted and experienced overall individual well-being induced by various hedonic events (Brickman et al. 1978; Gilbert et al. 1998; Riis et al. 2005; Schkade and Kahneman 1998; Wilson et al. 2000). People tend to predict that the affective impact of these hedonic events will last much longer than it actually does (Wilson et al. 2000). One key mechanism proposed for this type of miscalculation is called the focusing illusion (Schkade and Kahneman 1998), whereby people erroneously think of their long-term well-being as determined disproportionately by the focal event. For instance, Schkade and Kahneman (1998) found that although midwesterners and Californians reported being equally satisfied with their lives in general, residents in both regions predicted higher life satisfaction for Californians than for midwesterners. In prediction, people focused disproportionately on the impact of climate, whereas climate does not seem to influence actual well-being in the long run. The present research examines predicted and experienced enjoyment with a particular product over time. Because predictions and evaluations of the consumption experience are both focused exclusively on the target item, it is unlikely that the focusing illusion would explain any failure to predict hedonic adaptation to products.

Relatively little research has examined consumers' predictions of enjoyment with a specific stimulus over time. Some research has shown that people have trouble predicting hedonic adaptation because they seem to hold incorrect beliefs about adaptation. For example, Kahneman and Snell (1992) found that people intuited adaptation for some positive consumption experiences such as listening to their favorite music, but they believed they would sensitize to unpalatable foods such as plain yogurt. More recent research has shown that people failed to predict a decrease in the affective intensity of continuous experiences lasting several minutes, such as massage and noise from a vacuum cleaner. Direct measures of lay beliefs revealed that people mistake-

only intuited sensitization rather than adaptation under these circumstances (Nelson and Meyvis 2008, study 1). These results suggest that consumers may hold inaccurate beliefs about adaptation for some products.

However, it is not clear whether individuals generally hold inaccurate beliefs about hedonic adaptation to specific items. Given the ubiquity of experience with adaptation to products, it would be surprising if there were not some lay belief in adaptation. For example, products that offer novel experiences, such as toys and games, as well as hedonic features on many other products are likely to be accompanied by the intuition that the pleasure they bring will decrease over time. In situations in which consumers hold accurate beliefs that product enjoyment will diminish over time, they may still fail to spontaneously apply these accurate beliefs when forecasting future enjoyment at the time of purchase. Why might people fail to apply their correct beliefs about adaptation? Much research has shown that individuals tend to construct preferences based only on information that is explicitly presented in the decision environment and that they ignore relevant information that is not presented (Kahneman and Frederick 2002). Furthermore, for attitudes and beliefs already stored in memory, only a very small subset will be readily accessible at any given time (Feldman and Lynch 1988). Changes in product enjoyment over time may not be one of the accessible thoughts in people's minds when making a purchase decision because people often evaluate hedonic experiences without much consideration of the duration of those experiences.

This idea is consistent with a stream of research showing that retrospective evaluations of temporally extended experiences are almost entirely based on several key moments of an experience (e.g., the peak and the end) to the neglect of the duration of the experience (Fredrickson and Kahneman 1993; Kahneman et al. 1993; Redelmeier and Kahneman 1996). Furthermore, neglect of duration reflects a broad principle of mental representation—people generally represent and evaluate temporally extended experiences in terms of transitions and singular moments rather than states (Kahneman and Frederick 2002). That is, people are likely to judge the impact of being a paraplegic or living in California by imagining what it is like to become a paraplegic or move to California (Schkade and Kahneman 1998). This evidence suggests that duration may not be naturally salient when evaluating temporally extended product consumption.

Insofar as hedonic adaptation occurs over time, salience of prospective duration plays an important role in cuing beliefs about adaptation for use in predictions. The lack of salience of prospective duration in predictions may prevent people from spontaneously considering how enjoyment from an item they are purchasing might change over an extended period of time. Therefore, we propose that people may judge the enjoyment of having a product by considering what it is like to acquire that product. Consequently, while people may hold appropriate beliefs about hedonic adaptation, they may simply fail to bring them to mind when making a purchase decision.

One way to enhance the salience of prospective duration and in turn prompt consideration of factors that are otherwise not accessible is by varying time within participants (Ariely and Loewenstein 2000; Redelmeier and Kahneman 1996). Doing so may shift attention from the transition between experiences to possible changes within an extended experience and in turn prompt consideration of adaptation. Therefore, in the current research, we have participants consider their consumption experience at multiple points in time. If this raises the salience of prospective duration, it may also prompt consideration of beliefs about adaptation for forecasts and choices.

To summarize, in the present research, we explore how and why predictions of product enjoyment over time may diverge from experiences even when consumers hold valid intuitive beliefs about hedonic adaptation. Moreover, we examine the consequences of this divergence for purchase decisions (see fig. 1). We first demonstrate in a pilot study that people hold beliefs about hedonic adaptation for various products. In study 1, we show that people’s predictions of future enjoyment with a product do not reflect diminishing enjoyment observed in actual experience despite the fact that they expressed a belief in diminishing enjoyment for that item in the pilot study. In study 2, we demonstrate that intuitive beliefs about decreasing enjoyment can be cued by prompting people to consider enjoyment with a product at both near and distant points in time. Furthermore, we show that consideration of adaptation to products shifts preferences away from products containing features whose enjoyment people believe will quickly dissipate over time. In studies 3 and 4, we rule out several alternative explanations

and provide evidence that salience of prospective duration is responsible for our effects. And finally, study 5 examines a boundary of people’s beliefs in decreasing enjoyment for products. In this study, we show that subtle changes in the description of a given product can influence the perceived variability of its consumption experience, which in turn moderates people’s belief in hedonic adaptation for that product. We conclude by discussing the implications of our findings and directions for future research.

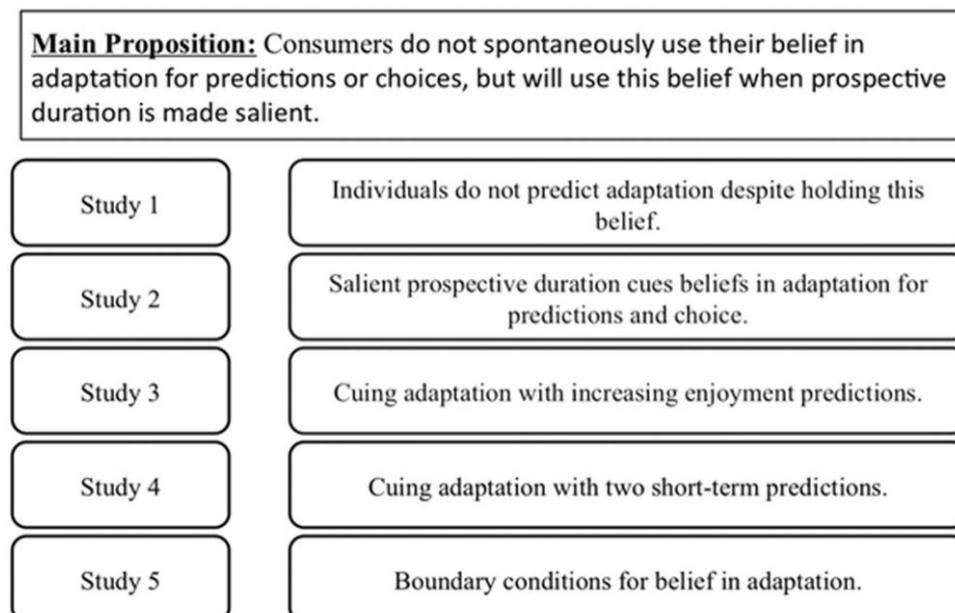
### PILOT STUDY: INTUITIVE BELIEFS ABOUT ADAPTATION TO PRODUCTS

To begin to understand how beliefs about diminishing enjoyment relate to forecasts for product enjoyment over time, we need to identify products for which there is a consistent belief in hedonic adaptation. Thus, we begin our investigation by examining people’s intuitive beliefs about adaptation. To do so, we explicitly asked participants in this study to consider how enjoyment from three different products might change over time.

#### Method

Eighty-nine undergraduate students completed this study as part of a large packet of questionnaires. Participants were presented with three scenarios in counterbalanced order, each corresponding to one product—a kaleidoscope, a big-screen plasma TV, and a stereo system. We selected the target items to represent various involvement levels and consumption patterns. We also varied the time periods over

FIGURE 1  
ROAD MAP



which estimates about changes in enjoyment were made, from 1 week for the kaleidoscope to 1 year for the TV and the stereo system, because we expected the rate of hedonic adaptation to vary among these products. For each product, participants were asked to indicate whether they expected enjoyment with the product to increase, decrease, or stay constant over the given time period.

## Results and Discussion

Participants believed that they would adapt to all three products. For the kaleidoscope, 84% of the participants thought that enjoyment would decrease over the course of 1 week, while only 2% believed it would increase ( $\chi^2(1) = 69.21, p < .001$ ), and 14% did not intuit any change in enjoyment. For the TV, 70% believed they would enjoy it less 1 year after purchase compared to several months after purchase; only 2% believed they would enjoy the TV more 1 year later ( $\chi^2(1) = 56.25, p < .001$ ), and 28% believed enjoyment would stay the same. Similarly, 75% believed that they would enjoy a stereo system less a year after purchase compared to several weeks after purchase; 11% thought that enjoyment would increase ( $\chi^2(1) = 42.19, p < .001$ ), and 14% believed it would stay constant.

These results show that people hold beliefs about hedonic adaptation for various products. If they incorporate these beliefs when making hedonic forecasts, they should predict a decrease in product enjoyment over time. However, if they do not predict decreasing enjoyment over time, then their beliefs are not being applied to those predictions. Therefore, in our next study, we examine whether individuals predict hedonic adaptation by asking them to forecast the level of future enjoyment with a product that our pilot study linked to a consistent belief in adaptation.

### STUDY 1: PREDICTED AND EXPERIENCED ADAPTATION TO A PRODUCT

This study examines predicted and experienced enjoyment with a product over time to test (1) whether there is actual adaptation for a product that is associated with a predominant belief in adaptation and (2) whether consumers incorporate adaptation beliefs in hedonic forecasts when there is not only a belief but also actual adaptation for a product. We used a kaleidoscope as the target product since our pilot study revealed an overwhelming consensus belief in hedonic adaptation for this product over a fairly short period of time.

#### Method

One hundred seventy-five undergraduate students were randomly assigned to one of four conditions based on a 2 (task: experience vs. forecast)  $\times$  2 (time: next day vs. a week later) between-participant design. Participants in the experience conditions were given a kaleidoscope and were told that they would be contacted via e-mail the following

week to answer some brief questions about the kaleidoscope. Those assigned to the forecast conditions were given a kaleidoscope to play with briefly. Then, half of those in the forecast condition predicted how much they would enjoy playing with the kaleidoscope the next day and the other half predicted how much they would enjoy playing with the kaleidoscope a week later on a 9-point scale (1 = not at all, and 9 = very much). Participants in the experience condition were contacted either the next day or a week later and asked to rate on the same 9-point scale how much they were enjoying playing with the kaleidoscope.

## Results and Discussion

Eight participants in the experience/next day condition and 10 in the experience/week later condition did not respond to the follow-up e-mail, leaving a total of 83 data points in the two experience conditions. A 2  $\times$  2 ANOVA on enjoyment ratings revealed a significant interaction between task and time ( $F(1, 153) = 3.94, p < .05$ ). As expected, experienced enjoyment with the kaleidoscope declined from day 1 ( $M = 5.05$ ) to day 7 ( $M = 3.56; t(81) = 2.74, p < .01$ ). However, enjoyment forecasts for day 7 were just as high ( $M = 5.54$ ) as forecasts for day 1 ( $M = 5.49; t(72) < 1$ ), indicating a failure to predict adaptation. Although forecasts were similar to experienced enjoyment on day 1 ( $M = 5.49$  vs.  $5.05; t(77) < 1$ ), forecasts significantly exceeded experienced enjoyment on day 7 ( $M = 5.54$  vs.  $3.56; t(76) = 3.42, p < .01$ ).

Study 1 demonstrated a failure to predict the substantial decrease in enjoyment that was observed in experience with a product. The results of our pilot study suggest that forecasters' misprediction was unlikely to be driven by incorrect beliefs about adaptation but rather reflected a failure to incorporate their appropriate beliefs when predicting future enjoyment. In the next study we examine why individuals may not incorporate their beliefs into predictions. We propose that when predicting future product enjoyment, beliefs about how enjoyment changes over time may not be accessible because people may fail to pay attention to the duration of the consumption stream and instead simply predict enjoyment from the perspective of someone who does not currently have the product. Therefore, in the next study we examine whether drawing attention to prospective duration will cue beliefs about adaptation and facilitate accurate predictions of future product enjoyment.

### STUDY 2: CUING BELIEFS ABOUT ADAPTATION AND CONSEQUENCES FOR CHOICE

In study 2, we extend our investigation in the following ways: (1) we test whether belief in diminishing enjoyment is applied to predictions when prospective duration is made salient; (2) we verify that the belief in diminishing enjoyment in the pilot study corresponds to a substantial drop in enjoyment, one large enough to show a reliable difference

TABLE 1  
STUDY 2 MEAN PREDICTED ENJOYMENT AND PERCENTAGE CHOOSING EXPENSIVE OPTION

Condition	Predicted short-term enjoyment	Predicted long-term enjoyment	% choosing feature-rich option
Sunroof choice:			
No prediction ( $N = 68$ )	. . .	. . .	52
Single prediction ( $N = 67$ )	. . .	5.64	61
Two prediction ( $N = 58$ )	5.97	4.00	26
Stereo choice:			
No prediction ( $N = 68$ )	. . .	. . .	49
Single prediction ( $N = 67$ )	. . .	6.67	58
Two prediction ( $N = 58$ )	6.76	5.55	29

between predictions of enjoyment at two points in time; and (3) we examine choices to test whether participants believe in enough decrease in enjoyment to affect what they choose.

To test whether predictions will incorporate belief in adaptation when prospective duration is salient, we rely on past research showing that varying an attribute value in a within-participant design typically increases the salience of that attribute, which may in turn prompt consideration of factors that are otherwise not accessible (Poulton 1989). In the present research, we attempt to draw attention to prospective duration by asking participants to predict enjoyment at two different points in time to explore whether that is sufficient to encourage consideration of the time course of product enjoyment and cue beliefs about adaptation. Specifically, we ask some respondents to predict enjoyment with a product in the near future followed by enjoyment in the distant future and ask other respondents to predict distant future enjoyment only. If individuals do not spontaneously apply beliefs about adaptation, then the first question each group answers should not reflect adaptation. That is, the short-term and long-term predictions should not differ when each is the first question asked. Only when participants see the second question about product enjoyment at a different point in time will they consider the duration of the experience and bring to mind beliefs about adaptation. Therefore, we expect that this prediction will incorporate beliefs about diminishing enjoyment.

Study 2 also explores whether the decreased enjoyment predictions influence relative preferences between expensive feature-rich options and cheaper simpler options since many purchase decisions require choosing among alternatives that differ in price and feature configurations. This study also extends our investigation to adaptation to particular features of a product rather than adaptation to entire products. We predict that preferences will shift away from higher priced alternatives that contain hedonic features whose enjoyment consumers believe will quickly dissipate when the time period of consumption is made salient.

## Method

One hundred ninety-three undergraduate students completed a short questionnaire in which they were presented

with a purchase scenario asking them to imagine that they were considering buying a new car. Participants were randomly assigned to one of three experimental conditions. Approximately one-third of the participants (no-prediction condition) simply made a choice between a four-door mid-sized sedan and the same car with a panoramic sunroof for an additional \$900. Another third of the participants (single-prediction condition) first predicted their enjoyment of the sunroof several months after purchase. The rest of the participants (two-prediction condition) predicted their enjoyment of the sunroof immediately after purchase as well as several months after purchase before choosing. Following the car choice, all participants made a choice between two stereos, a feature-rich, relatively expensive model and a cheaper, simpler model. Before making this choice, participants made the same forecasts for enjoyment of the stereo that they made for the sunroof (except that the time frames were 1 week and 1 year).

## Results and Discussion

As shown in table 1, predictions of participants' enjoyment of the sunroof are consistent with our hypothesis. Specifically, in the between-participant comparison, predicted enjoyment several months after purchase in the single-prediction condition ( $M = 5.64$ ) did not reliably differ from predicted enjoyment immediately after purchase in the two-prediction condition ( $M = 5.97$ ;  $t(123) < 1$ ), indicating a failure to predict adaptation and replicating study 1. But when duration was made salient, predictions reflected beliefs about hedonic adaptation to the sunroof (in the two-prediction condition,  $M_{\text{immed.}} = 5.97$ ,  $M_{\text{months}} = 4.00$ ;  $t(57) = 8.16$ ,  $p < .001$ ). Taking the within- and between-participant results together, we have evidence that only when attention is drawn to duration by making predictions of product enjoyment at both near and distant points in time do participants apply beliefs about adaptation and adjust their predictions accordingly; otherwise, individuals fail to consider the time course of enjoyment with a product, leaving valid beliefs about adaptation untapped.

More important, confirming our predictions, cuing beliefs about adaptation significantly decreased the choice share of the option that charged a premium for additional features.

Specifically, after making two predictions about enjoyment with the sunroof, only 26% preferred the car with the sunroof, significantly fewer than in the no-prediction condition (52%;  $\chi^2(1) = 8.58, p < .01$ ) or the single-prediction condition (61%;  $\chi^2(1) = 15.69, p < .001$ ). Consistent with our proposed explanation, the data also revealed that predicted enjoyment in the distant future mediated the effect of condition on choice (Sobel  $z = 2.79, p < .01$ ).

The results of the second choice (stereo purchase) replicated the findings above for both enjoyment predictions and choice. Predicted enjoyment 1 year after purchase in the single-prediction condition ( $M = 6.67$ ) did not reliably differ from predicted enjoyment 1 week after purchase in the two-prediction condition ( $M = 6.76; t(123) < 1$ ). But when prospective duration was made salient, predictions reflected beliefs in hedonic adaptation (in the two-prediction condition,  $M_{1\text{week}} = 6.76, M_{1\text{year}} = 5.55; t(57) = 5.83, p < .001$ ). After predicting enjoyment with the stereo both a week and a year after purchase, participants chose the expensive stereo less frequently (29%) than after only predicting enjoyment a year after purchase (58%;  $\chi^2(1) = 10.50, p < .01$ ) and after no predictions (49%;  $\chi^2(1) = 4.75, p < .05$ ). Finally, we found that predicted long-term enjoyment with the stereo mediated the effect of condition on choice (Sobel  $z = 2.33, p < .05$ ).

The choice results need not follow from the forecasting results. If purchase decisions were driven by consideration of short-term enjoyment, then making salient the knowledge that one might adapt to an item in the long run would not have much effect. Similarly, if the amount of the predicted decrease in enjoyment was not sufficient to influence choices, then making beliefs about adaptation salient would not have influenced choices. The results of study 2 also cast doubt on the idea that making two predictions merely undoes myopia, which is often documented in choices over long-term outcomes. We included a condition in which participants were asked to predict long-term enjoyment prior to making a choice because this focused them on long-term considerations but did not prompt them to think about prospective duration. As predicted, it did not change their preferences.

Another explanation for the enjoyment findings in this study is based on the idea that the enjoyment scale was calibrated differently across the conditions. Participants in the single- and two-prediction conditions may have been thinking about different levels of enjoyment when they approached the enjoyment rating scale, but because the scale is subjective, both groups may have circled numbers around the middle of the scale to represent different absolute levels of enjoyment. It is only when participants have defined the scale with their first prediction that they then adjust down for their second prediction (Grice and Hunter 1964). However, the choice data speak against this idea. If both groups had similar ideas about enjoyment in the long term but were just representing them differently on the enjoyment scale, then choices following these predictions should not differ. Because they did differ substantially, we can be confident

that the enjoyment ratings did not differ simply because the groups were using the scale differently.

### STUDY 3: CUING ADAPTATION WITH HIGHER ENJOYMENT PREDICTIONS

Study 2 demonstrated that having people consider product enjoyment at both near and distant points in time cued beliefs about adaptation that had a systematic impact on predicted distant future enjoyment and choice. We interpret these results as evidence that changes in the salience of duration of product ownership influenced choice. However, participants in the two-prediction condition gave low ratings for distant future enjoyment to express a belief in adaptation, so they might have decreased spending because they might have thought the experimenter would want them to avoid the sunroof after rating it on the low end of the scale. This may have occurred despite an actual desire to buy the sunroof that was similar to participants in the other conditions and was not diminished by their own enjoyment predictions. To rule out this alternative account, in study 3 we examine purchase intent for a product after consideration of its enjoyment in the distant future followed by the near future compared to consideration of only the distant future enjoyment. Notice that these two groups should make similar long-term predictions because the two conditions do not differ up to the point at which they make those predictions. When the former group then makes a short-term prediction, they will likely make a higher enjoyment rating because they will be thinking about adaptation at that point and will want to adjust up from their long-term prediction. Based on our theorizing, such a manipulation should raise the salience of prospective duration, cue beliefs about adaptation, and consequently produce similar effects to study 2 (i.e., decrease purchase intent relative to when duration is not made salient). The consistency-based account, however, predicts an increase in purchase intent following higher enjoyment predictions.

#### Method

Eighty-nine undergraduate students individually completed a questionnaire. Participants were provided with the description and picture of the same kaleidoscope used in study 1 and were asked to indicate their purchase likelihood on a 9-point scale (1 = not at all likely, and 9 = very likely). Half of the participants were randomly assigned to first make predictions about how much they would enjoy playing with the kaleidoscope a week after receiving it (week condition) and then indicate their purchase intent. The other participants were asked to predict enjoyment with the kaleidoscope, first, a week after receiving it and, second, the day after receiving it (week-day condition) before stating their purchase intent.

#### Results and Discussion

Predicted enjoyment with the kaleidoscope 1 week later did not reliably differ across the two conditions ( $M_{\text{week}} =$

TABLE 2  
STUDY 4 MEAN PREDICTED ENJOYMENT AND PURCHASE INTENT FOR DIGITAL CAMERA

Condition	Predicted enjoyment in 1 week	Predicted enjoyment in 2 weeks	Predicted enjoyment in 1 year	Purchase likelihood
Single prediction ( $N = 28$ )	. . .	. . .	7.29 (.90)	6.96 (1.65)
Disparate prediction ( $N = 27$ )	7.56 (1.42)	. . .	5.52 (1.76)	3.70 (2.05)
Close prediction ( $N = 30$ )	7.57 (1.48)	7.37 (1.56)	. . .	4.23 (2.37)

NOTE.—Numbers in parentheses indicate standard deviations.

3.70 vs.  $M_{\text{week day}} = 3.16$ ;  $t(87) = 1.28$ ,  $p > .2$ ). However, participants predicted a significant increase in enjoyment from 1 week to 1 day in the week-day condition ( $M_{1\text{day}} = 3.16$ ,  $M_{1\text{week}} = 5.18$ ;  $t(44) = 6.96$ ,  $p < .001$ ), suggesting that belief in adaptation was cued in this condition. More important, drawing attention to duration significantly influenced purchase intent as expected—after predicting enjoyment in the long term and then the short term, participants were significantly less likely to want to purchase the kaleidoscope than after predicting enjoyment in the long term only ( $M_{\text{week day}} = 2.42$  vs.  $M_{\text{week}} = 3.25$ ;  $t(87) = 2.33$ ,  $p < .05$ ).

The results of this study provide evidence for our hypothesis and against alternative explanations based on response consistency. If participants' reported purchase intent arose from a desire to be consistent with their enjoyment predictions, then higher enjoyment predictions should lead to increased purchase intent. However, we show that when attention is explicitly drawn to prospective duration using questions that lead to higher enjoyment predictions, participants still apply beliefs about adaptation and reduce their purchase intent.

#### STUDY 4: DRAWING ATTENTION TO A SHORT TIME PERIOD

Study 4 was designed to provide another test of our hypothesis that attention to prospective duration is the critical factor in cuing beliefs about adaptation. Our theory posits that attention to duration in the context of an extended consumption situation should be sufficient to cue beliefs about adaptation and influence purchase intent. While our previous studies also explicitly drew attention to changes in enjoyment when drawing attention to duration, this should not be necessary to cue beliefs about adaptation. In this study, we attempted to draw attention to duration without drawing attention directly to any change in enjoyment. To do so, we ask some participants to predict product enjoyment at two points in time that are so close to each other that the predominant prediction will be that enjoyment will remain fairly constant over that particular period of time. This manipulation should draw attention to duration because participants are forced to think about two points in time. Therefore, it should be sufficient to cue beliefs about adaptation and consequently decrease purchase propensity. Notice that if there is any direct effect of priming enjoyment, it should

be to increase purchase propensity because participants are stating that enjoyment is going to stay high for some time.

#### Method

Eighty-five undergraduate students participated in this study. Participants were presented with detailed information about a digital camera and were asked to indicate their purchase likelihood on a 9-point scale (1 = not at all likely, and 9 = very likely). Participants were randomly assigned to one of three conditions. In the single-prediction condition, participants were first asked to predict how much they would enjoy the camera in 1 year and then to indicate their purchase intent. In the disparate-prediction condition, participants were asked to predict enjoyment with the camera in 1 week and then in 1 year before stating their purchase intent. In the new close-prediction condition, participants were asked to predict enjoyment with the camera, first, in 1 week and, second, in 2 weeks before stating purchase intent. We predicted that 7 days (i.e., from week 1 to week 2) would be too short a temporal window for participants to believe there would be a significant change in enjoyment with the camera. Nevertheless, we believe participants in this condition should have a purchase likelihood that is similar to those in the disparate-prediction condition and lower than those in the single-prediction condition.

#### Results and Discussion

First, our manipulation of the distance between predictions seemed to have the desired effect on enjoyment predictions. Only 17% of participants in the close-prediction condition predicted a decrease in enjoyment with the camera from 1 week to 2 weeks after purchase, whereas 90% of participants in the disparate-prediction condition predicted a decrease in enjoyment from 1 week to a year after purchase. More important, as expected, compared to the single-prediction condition, purchase intent significantly decreased in the close-prediction condition ( $M_{\text{single}} = 6.96$  vs.  $M_{\text{close}} = 4.23$ ;  $t(55) = 4.99$ ,  $p < .001$ ) and the disparate-prediction condition ( $M_{\text{single}} = 6.96$  vs.  $M_{\text{disp.}} = 3.70$ ;  $t(52) = 6.43$ ,  $p < .001$ ), while the latter two conditions were not reliably different ( $t(55) < 1$ ; see table 2).

Since 17% of participants in the close-prediction condition predicted a decrease in enjoyment, we wanted to rule out the possibility that these participants were driving the

difference between conditions. We analyzed purchase intent ratings separately for the 83% of participants who indicated that enjoyment would not decrease between the first and second week of ownership. To avoid potential truncation effects, we also excluded the highest 17% of purchase intent data from the single-prediction condition. Again, compared to participants in the single-prediction condition, purchase intent was significantly lower among participants in the close-prediction condition ( $M_{\text{single, 83\%}} = 6.50$  vs.  $M_{\text{close, no decr.}} = 4.32$ ;  $t(45) = 3.65$ ,  $p < .001$ ). The substantial decrease in purchase propensity suggests that direct priming of diminishing enjoyment is not driving our effect. Making salient a duration that is not long enough to elicit predictions of diminishing enjoyment is sufficient to cue beliefs about adaptation because it is the salience of duration rather than predictions of diminishing enjoyment that causes beliefs about adaptation to influence purchase intent.

### STUDY 5: PERCEIVED PRODUCT VARIABILITY AND BELIEFS ABOUT ADAPTATION

Thus far, we have accumulated evidence that people do not spontaneously rely on their beliefs about diminishing product enjoyment when making hedonic forecasts or purchase decisions but that drawing attention to duration can effectively cue these beliefs and influence subsequent choices. However, we do not think that drawing attention to duration will always cue beliefs in adaptation. Research on global well-being has found that drawing attention to multiple points in time did not consistently cue a belief in adaptation (to paraplegia) perhaps because individuals do not hold the lay belief that there is adaptation in that domain (Ubel, Loewenstein, and Jepson 2005). Similarly, if individuals do not believe in adaptation for a particular product, making duration salient should not influence choices involving that product.

Despite the fact that people hold beliefs about diminishing enjoyment for a wide array of products and experiences, they may not believe in adaptation for all products. Prior research has not been very successful in identifying a general framework to account for variations in either the experience of adaptation or intuitive beliefs about adaptation (Frederick and Loewenstein 1999; Kahneman and Snell 1992). To look for potential boundaries of belief in adaptation, we considered what people do when they are concerned about diminishing enjoyment. Past research has shown that people attempt to reduce adaptation by seeking variety (Ratner, Kahn, and Kahneman 1999). If people seek variety at least in part because they are worried about diminishing enjoyment from a consumption stream, then they may believe that they will not adapt to experiences that already contain sufficient variation. Building on this idea, we propose that people may not believe in diminishing enjoyment for products that offer highly variable experiences. As a result, making duration salient may have a differential effect on purchase decisions depending on the amount of

perceived variation in the consumption experience—it may affect purchase intent when variability is low but not when variability is high. In our final study, we test this proposition.

### Method

One hundred fifty-seven undergraduate students were randomly assigned to one of four conditions following a 2 (perceived variability: high vs. low)  $\times$  2 (single vs. two prediction) design. Participants were presented with a picture and description of an iPod Nano and were asked to indicate on a 9-point scale how likely they would be to purchase it. Based on our earlier findings, we asked half of the respondents, before indicating purchase intent, to predict their enjoyment level with the iPod Nano in 2 years (not making duration salient) and asked the other half to predict their enjoyment level in 1 week and then in 2 years (making duration salient).

To manipulate the perceived variability of using the iPod Nano, we embedded in the product description a mention of it being able to store hundreds of songs either by one's favorite artist (low variability) or by numerous artists (high variability). All other aspects of the product description were kept identical across conditions (see fig. 2).

Forty-three respondents from the same population as our main study completed a pretest in which they were presented with the two versions of the iPod Nano description (favorite artist vs. numerous artists). Respondents were asked to rate the iPod Nano on versatility, convenience, variability of the consumption experience, and ease of use. All ratings were made on 9-point scales (1 = not at all, and 9 = very). The pretest results confirmed that the iPod Nano was considered more versatile when it was described as capable of holding hundreds of songs by numerous artists ( $M = 6.95$ ) than by one's favorite artist ( $M = 5.64$ ;  $t(41) = 2.16$ ,  $p < .05$ ). It was also considered to provide a more variable experience when described as playing music by numerous artists ( $M = 6.43$ ) than by one's favorite artist ( $M = 4.68$ ;  $t(41) = 2.20$ ,  $p < .05$ ). Participants did not rate the iPod differently on convenience ( $M_{\text{num.}} = 7.24$  vs.  $M_{\text{fav.}} = 6.82$ ;  $t(41) < 1$ ) or ease of use ( $M_{\text{num.}} = 6.76$  vs.  $M_{\text{fav.}} = 7.23$ ;  $t(41) < 1$ ).

### Results and Discussion

First, enjoyment predictions for the distant future were submitted to a 2  $\times$  2 ANOVA, and the results revealed a significant interaction between perceived variability and the number of predictions ( $F(1, 153) = 12.97$ ,  $p < .01$ ). Specifically, in the low variability conditions, predicted enjoyment 2 years later was significantly lower when hedonic forecasts were made for two different points in the future than when only one forecast was made ( $M_{\text{two pred.}} = 4.42$  vs.  $M_{\text{one pred.}} = 6.40$ ;  $t(79) = 4.27$ ,  $p < .01$ ). However, when variability was high, predicted enjoyment 2 years later was equally high regardless of whether participants made forecasts for two points ( $M = 6.32$ ) or for a single point ( $M = 5.95$ ;  $t(74) < 1$ ). Moreover, when duration was made salient by asking participants to make two enjoyment forecasts, they

**FIGURE 2**  
STIMULI USED IN STUDY 5

Low Variability

Listen to Your Favorite Artist Whenever, Wherever  
Second Generation APPLE™ iPod Nano 4GB  
Price: ~~\$499.00~~ Promotional Offer: \$149.00



- Holds hundreds of songs by your favorite artist
- A mere 1.4-ounce super-thin pocket-size prodigy that allows you to listen to your favorite artist no matter where you are
- 1.5-inch remastered liquid crystal display with blue-white LED backlight that is 40% brighter than the previous generation iPod Nano
- Measures 3.5(h) x 1.6(w) x 0.3(d)inches

High Variability

Listen to Numerous Artists Whenever, Wherever  
Second Generation APPLE™ iPod Nano 4GB  
Price: ~~\$499.00~~ Promotional Offer: \$149.00



- Holds hundreds of songs by numerous artists
- A mere 1.4-ounce super-thin pocket-size prodigy that allows you to listen to numerous artists no matter where you are
- 1.5-inch remastered liquid crystal display with blue-white LED backlight that is 40% brighter than the previous generation iPod Nano
- Measures 3.5(h) x 1.6(w) x 0.3(d)inches

NOTE.—Circled highlights were not present in original stimuli. Color version available as an online enhancement.

predicted a significant decrease in enjoyment from 1 week to 2 years when variability was low ( $M_{1\text{week}} = 6.61$  vs.  $M_{2\text{years}} = 4.42$ ;  $t(37) = 5.42$ ,  $p < .01$ ) but not when it was high ( $M_{1\text{week}} = 6.76$  vs.  $M_{2\text{years}} = 6.32$ ;  $t(37) = 1.47$ ,  $p > .15$ ). This pattern of results suggests that people do not believe in adaptation when product consumption is perceived to be variable.

A  $2 \times 2$  ANOVA on purchase intent also revealed a significant interaction between perceived variability and the number of predictions ( $F(1, 153) = 4.07$ ,  $p < .05$ ). As expected, when variability was low, purchase intent significantly decreased when duration was made salient ( $M_{\text{one pred.}} = 5.12$  vs.  $M_{\text{two pred.}} = 3.45$ ;  $t(79) = 3.04$ ,  $p < .01$ ). When variability was high, however, making duration salient had no

effect on purchase intent ( $M_{\text{one pred.}} = 4.97$  vs.  $M_{\text{two pred.}} = 4.92$ ;  $t(74) < 1$ ).

These findings demonstrate that whether people believe they will adapt to a product depends on the amount of perceived variation in its consumption experience. Moreover, subtle changes in a product's description can affect whether people believe they will adapt to that product.

## GENERAL DISCUSSION

The ability to accurately predict how product related experiences will progress over time is important for many purchase decisions, and these predictions are often based on people's intuitive beliefs. Clearly, inaccurate intuitions about

how hedonic experiences change with time can result in unrealistic expectations about the future, leading to sub-optimal choices. The present research highlights that accurate beliefs may not guide choices and that failure to apply these beliefs may lead to choices similar to those made when not having the beliefs.

In a series of studies, we explored why a prevalent belief in hedonic adaptation is not reflected in hedonic predictions or purchase decisions of products that are consumed over time. In study 1, we found that predictions of enjoyment were largely insensitive to hedonic adaptation observed in actual experience, despite a very prevalent belief that the target product is subject to adaptation. Study 2 demonstrated that drawing attention to the time period over which a product is consumed could cue intuitive beliefs about adaptation. Study 2 also showed that these beliefs were substantial enough to influence choice.

Studies 3 and 4 rule out alternative explanations based on response consistency and direct priming of diminishing enjoyment. Study 3 showed a decrease in purchase propensity after participants considered product enjoyment in the distant future followed by the near future compared to those who just predicted distant future enjoyment. This occurred despite the fact that the former group made enjoyment ratings that were higher than the latter group's because only the former group was thinking about the duration of product consumption and therefore about adaptation. In study 4, we were able to draw attention to prospective duration without drawing attention directly to any change in enjoyment. We showed that making multiple predictions even over a time period during which enjoyment does not decrease is sufficient to draw attention to prospective duration and to beliefs in adaptation. Finally, in study 5, we tested the idea that people may not believe in diminishing enjoyment for products that offer highly variable experiences. We showed that subtle changes in the description of a given product could influence the perceived variability of product consumption, which in turn moderated the effect of making prospective duration salient on purchase decisions.

While the present research explored some ways to cue duration and beliefs in adaptation, there are likely many other effective cues. For example, in a study not reported here, we found that asking consumers to merely imagine consumption at different points in time was sufficient to cue beliefs about adaptation without asking for any enjoyment predictions. Future research could examine other potential adaptation cues, including thinking about duration in unrelated contexts (e.g., estimating the duration of an unrelated event).

Our findings suggest that the neglect of hedonic adaptation can result in dissatisfaction arising from individuals' failure to predict how quickly their enjoyment of a new purchase will fade. If consumers do not think about diminishing enjoyment when making a purchase decision, they may feel particularly dissatisfied when their enjoyment actually does decrease. Future research could provide direct support for this idea by examining consumers who do and

do not consider adaptation prior to purchase and comparing their satisfaction with their purchase over time.

Another important direction for future research is suggested by study 5. In that study, we show that whether people believed they would adapt to a product depended on the amount of perceived variation in its consumption. Future research may uncover a range of such factors that moderate whether and how quickly people believe they will adapt to various products. For example, complexity of the product, extremity of the experience, continuity of use, and valence are among the potential moderators of consumers' belief in adaptation. Future research might also examine when individuals are likely to use their beliefs in nonadaptation to fend off potential adaptation. For example, consumers might sometimes turn toward products that are more complex in the hope that these products will be less susceptible to adaptation. Similarly, future research might uncover products or choice situations that call to mind beliefs about adaptation without any further cues. For example, the variety-seeking literature has many demonstrations of individuals making choices to ward off adaptation, suggesting that situations with repeated choice or in which individuals are explicitly constructing a sequential experience may make beliefs about adaptation accessible. Even for situations in which drawing attention to multiple points in time does not reveal a consistent belief in adaptation, more heavy-handed methods, such as guiding forecasters through reasoning about how and why they might adapt, have been shown to produce significant effects (Ubel et al. 2005). Individuals can also be made to predict continuity or change in affect for a fixed situation by primes that suggest different dynamics (Igou 2004). This suggests that future research has much to uncover about what it takes to develop and cue predictions of adaptation across situations.

Our findings have implications for consumer well-being. Overspending has become a pressing issue in the United States. The *Los Angeles Times* recently documented a typical couple living on the edge of the financial cliff and noted that they were driven to their current situation by nothing other than their casual spending on a host of frivolous products that they quickly adapted to, such as fancy throw pillows and sitcom DVD sets (Barron 2007). The present research suggests that salience of duration and anticipation of adaptation when making purchase decisions may help ward off this kind of uncontrolled and self-defeating spending habit.

Anticipating adaptation when making purchase decisions may also influence how much choice conflict is experienced during decision making. Decision makers will likely experience different levels of conflict depending on whether adaptation is salient, which may in turn influence which option is chosen. For example, a growing literature on choice overload shows that high levels of choice conflict can cause people to opt out of a choice entirely (Iyengar and Lepper 1999). As Schwartz (2004, 178) pointed out, "Factoring in adaptation to the decision-making process may make differences that seem large at the moment of choice feel much

smaller.” This in turn may reduce choice conflict and, consequently, may reduce the time, effort, and stress associated with choosing.

Finally, our results reveal the potential for at least two ironic effects. First, marketers who highlight the duration of consumption by emphasizing a positive attribute, such as durability or a 5-year warranty, might actually dampen consumer interest because consumers might be more likely to think about adaptation following this communication. In fact, we have preliminary evidence that merely offering leases of varying durations (instead of just one duration) is sufficient to cue adaptation beliefs and reduce interest in those leases. Second, individuals may try to imagine long-term enjoyment as a way to guard against spending on items they will adapt to. When participants in our studies were asked to predict only long-term enjoyment, their failure to consider adaptation led them to overestimate long-term enjoyment. Future research could investigate whether individuals who try to think long term are actually more prone to purchase items susceptible to adaptation than are those who think short term precisely because neither group is thinking about adaptation.

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