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# The Effect of Price on Preference Consistency Over Time

KELLY KIYEON LEE  
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Construal level theory indicates that consumers tend to prefer products high in desirability (greater functionality) for distant-future decisions but switch their preferences toward products high in feasibility (greater usage convenience) for near-future decisions. The current research demonstrates that price information, traditionally considered as a feasibility cue, can increase consumers' near-future preference toward products with greater functionality despite their low convenience, leading to preference consistency over time. As the underlying mechanism, price information increases the functionality importance for near-future decisions due to consumers' enhanced value-seeking tendency when seeing price and their lay belief that greater functionality represents higher value. Further, when consumers are led to believe that greater convenience represents higher value, price and the value-seeking tendency result in a greater preference toward easy-to-use products for the distant future and lead to preference consistency across time as well. Theoretical implications are discussed.

Many product choices involve trade-offs between desirability (i.e., functionality of a product) and feasibility (i.e., usage convenience). For example, consider a consumer who is looking for a type of photo-editing software to create a photo album in 2 months. Adobe Photoshop Elements 10, a high-functionality option, provides a full range of image-editing features; however, it requires a great deal of effort to learn and use. CyberLink PhotoDirector 2011, however, is easy to use with its simple interface and one-step installation process, but its image-editing features are limited. Because the consumer is choosing the software for distant-future usage, he focuses on the functionality of

the software and ignores whether it is easy to use, thus ordering the Adobe product with full capacity. However, as the time to create the photo album draws near, ease of use becomes top priority and the wide-ranging functionality of the software loses its importance. The consumer wishes he had ordered the easier software.

As this example illustrates, and as research on decisions over time has indicated (Soman 2004; Tanner and Carlson 2009; Trope and Liberman 2003; Zauberger and Lynch 2005), consumers often display inconsistent preferences over time when the decision involves trade-offs between desirability and feasibility: they choose options high in desirability for distant-future decisions but prefer options high in feasibility as the time of implementation draws near. These inconsistent preferences have been found to result in negative consequences such as regret, lower customer satisfaction, and failure to carry through with the earlier committed choices (Soman 2004; Zauberger and Lynch 2005). In the current research, we examine whether such preference inconsistency over time can be mitigated by price information, which we suggest increases consumers' value-seeking tendency (Thaler 1985). Due to a prevalent lay belief that more features and greater functionality represent higher value, this increased value-seeking tendency will shift consumers' focus from the natural feasibility-related concerns ("Is this software package easy to use?") to desirability-related concerns ("Does this software package provide maximal functionality to get my money's worth?") for near-future decisions. Consequently, consumers increase their

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preference toward the high-functionality option in the near future, which is consistent with their distant-future preference. For the distant future, because consumers naturally focus on product functionality, the effect of price information on desirability focus is redundant and does not change preferences as much.

In four experiments, we demonstrate the effect of price information on preference consistency over time across various product choices involving functionality/convenience trade-offs. Further, we show a boundary condition when individuals are led to believe that greater convenience (rather than greater functionality) represents higher value. In closing, we discuss the theoretical implications of our findings to choice over time and consumer heuristics and speculate on future research directions.

## THEORETICAL FRAMEWORK

Time-dependent changes in choice and preference have been studied in interdisciplinary areas such as behavioral decision making (Thaler 1981), self-control (Rachlin 1995), and delay of gratification (Mischel, Shoda, and Rodriguez 1989). Whether temporal shifts have been explained by affective mechanisms (Loewenstein 1996) or by cognitive mechanisms (Liberman and Trope 1998; Trope and Liberman 2003; Zauberman and Lynch 2005), prior research has consistently demonstrated that consumers are more sensitive to desirability when making distant-future decisions and more sensitive to feasibility when making near-future decisions. This leads consumers to prefer options higher in desirability for the distant future, despite a low level of feasibility, and to shift their preference toward the high-feasibility options with lower desirability when the decision draws near. For example, research in construal level theory (CLT) has shown that people prefer interesting but difficult assignments for the distant future yet uninteresting but easy assignments for the near future (Liberman and Trope 1998), or people forecast stronger preferences for really new products (with novel functionalities but involving greater learning cost), yet they do not end up purchasing the new products when the products actually come to market (Alexander, Lynch, and Wang 2008). These inconsistent preferences over time often lead to regret, lower customer satisfaction, or failure to follow through with the earlier committed choices (Alexander et al. 2008; Soman 2004; the "Yes . . . Damn" effect, Zauberman and Lynch 2005).

Given the frequency of preference inconsistency over time and its potentially negative consequences, a substantial body of research has suggested different external aids that can help people attenuate preference inconsistency, including practicing distant-future tasks in full detail (Gollwitzer 1999; Trope and Liberman 2003), shifting attention away from immediate temptation (Hoch and Loewenstein 1991; Mischel et al. 1989), and practicing different types of mental simulation (Zhao, Hoeffler, and Zauberman 2007). In this investigation, we propose that the simple intervention of highlighting price information can shift consumers' focus from feasibility to desirability for the near future, leading

to preference consistency over time. Although price is an essential marketplace cue that affects consumers' way of thinking and their purchase decisions, little research in CLT has directly investigated the effect of price on consumer preference (Alexander et al. 2008; Trope and Liberman 2003; Zhao et al. 2007), with the exception of Liberman and Trope (1998) where price was treated as a feasibility cue (i.e., affordability) because it was a means toward the end (e.g., attending a concert).

When being exposed to price information, how would consumers react in making a choice between two options that trade off functionality and convenience? Prior research has demonstrated that consumers have a strong tendency to seek value when they see price information (Hsee 1999; Thaler 1985; Yeung and Soman 2007). According to the *Merriam-Webster Dictionary*, value is defined as the monetary worth of something. When consumers think about how much they need to pay to obtain a product, they naturally think about which option gives them the most value for their money. In determining the monetary worth, consistent with people's frequent usage of heuristics during judgment and decisions (Tversky and Kahneman 1973, 1974), consumers are prompted to evaluate products on the basis of their (often irrationally) perceived values from a simplified heuristic rule, rather than carefully assessing product features and integrating these assessments to form an economic evaluation (Yeung and Soman 2007). For example, prior research has shown that when exposed to price, consumers would prefer a physical training program with a longer duration over one with a shorter duration, or prefer a locksmith who takes 20 minutes to unlock a door over a locksmith who does the job in 5 minutes, even if they are economically worse off with their preferred choice. That is, the longer duration scores low in convenience and actually means more effort or even a waste of time for their particular choices (Yeung and Soman 2007). In a similar vein, a recent study shows that price prompts consumers to think about whether a product is worth the given price and increases the desire to purchase products with more functional benefits (Karmarkar 2010).

According to these prior findings, we propose that when price information is provided in a scenario involving functionality/convenience trade-offs, consumers will increase their tendency to seek value for the money they need to pay. Since adding a (trivial) feature can lead consumers to infer the feature's value and an even greater valuation of the brand (Carpenter, Glazer, and Nakamoto 1994), and since each additional feature provides another reason for consumers to purchase a product by adding capability and thus perceived value (Brown and Carpenter 2000), consumers' value-seeking tendency leads them to focus on the benefits of having more features that lead to greater functionality, while ignoring whether it is convenient to use these features (Yeung and Soman 2007).

On the basis of the reasoning above, we propose that when price information is presented, because of consumers' increased tendency to seek value and their lay belief that

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more features and greater functionality represent higher value, they tend to focus on functionality of the products and neglect usage convenience. When the product decision is for the near future, this shift from a natural focus on the feasibility aspect to the desirability aspect increases consumers' preference for a high-functionality product. When the product decision is for the distant future, a circumstance in which consumers naturally focus on desirability (Lieberman and Trope 1998; Zauberma n and Lynch 2005), the effect of price information is redundant; thus, price information does not catalyze a change in preference (Zhao et al. 2007). As a result, we hypothesize that price information increases preference for high-functionality products for the near future and induces preference consistency over time. Below, we report four experiments that were designed to test our hypothesis and the important role of consumers' lay belief about value.

## EXPERIMENT 1

To examine how price information can affect consumers' preference consistency over time, we selected real market-place products and their prices in this experiment. We chose two digital cameras from the same brand (Nikon) that involve trade-offs between product functionality and usage convenience. One digital camera (Nikon Coolpix P510) provides greater functionality with rich features but is more difficult to use, whereas the other digital camera (Nikon Coolpix S9300) provides fewer features but is superior in usage convenience. The price of the high-functionality option (\$429.99) is higher than the price of the high-convenience option (\$349.99). According to CLT (Lieberman and Trope 1998), for the distant future, consumers would prefer the Nikon Coolpix P510 because of its greater functionality; however, for the near future, they would prefer the Nikon Coolpix S9300 due to its usage convenience, and this preference should be strengthened if price information is shown because this camera is also more affordable and thus more feasible to obtain. Contrary to what CLT would predict, we expect that consumers' preference across time would become consistent toward the high-functionality camera once the price information of both products becomes salient because price makes consumers consider the value for the money and focus more on the features and functionality.

### Design and Procedure

Eighty-one students at Washington University in St. Louis were recruited and received course credit for participation. They were randomly assigned to four conditions in a 2 (time: near future vs. distant future)  $\times$  2 (price: no price vs. price) between-subjects design.

Participants were asked to imagine that they were going on vacation in either 2 days (near future) or 2 months (distant future). They were told that they were planning to buy a digital camera to take pictures during their trip, with two options from which they could choose. Nikon Coolpix S9300 (the high-convenience option) had a 16-megapixel

sensor with 72x total zoom (18x optical zoom/4x digital zoom) and offered basic features (e.g., limited scene modes and video mode). However, it was compact and light (size: 2.5 H  $\times$  4.3 W  $\times$  1.2 D inches, weight: 7.6 oz.) and had a low level of learning difficulty for basic functions. Nikon Coolpix P510 (the high-functionality option) had a 16.1-megapixel sensor with 84x total zoom (42x optical zoom/2x digital zoom) and offered advanced features (e.g., 20 scene modes, video mode, panorama mode, a manual control, and a skin-softening function). However, it was bulky and heavy (size: 3.3 H  $\times$  4.7 W  $\times$  4 D inches, weight: 19.6 oz.) and had a high level of learning difficulty. Participants in the no-price conditions received no price information. Participants in the price conditions were provided with real market prices: \$349.99 for Nikon Coolpix S9300 (the high-convenience option) and \$429.99 for Nikon Coolpix P510 (the high-functionality option).

We measured participants' binary choice and relative preference between the two digital cameras on an 11-point scale (1 = "definitely prefer Nikon Coolpix S9300" vs. 11 = "definitely prefer Nikon Coolpix P510"). As a manipulation check for time, we asked participants to rate their perception of the time gap between purchase and use on an 11-point scale (1 = "very short" vs. 11 = "very long").

### Results and Discussion

*Manipulation Check.* Our manipulation of time was successful in showing that participants perceived the time gap in the near-future conditions ( $M = 2.80$ ) as significantly shorter than that in the distant-future conditions ( $M = 6.95$ ;  $F(1, 79) = 131.91, p < .001$ ). We used the same manipulation check for later experiments, and our time manipulation was consistently confirmed. Therefore, we do not report this measure in later experiments.

*Choice and Relative Preference.* An overall chi-square test revealed significant differences across conditions ( $\chi^2(3) = 8.93, p = .03$ ; see table 1). In the no-price conditions, consistent with CLT, significantly more participants in the distant-future condition chose the high-functionality option than did those in the near-future condition ( $M_{\text{dis/no pr}} = 41\%$  vs.  $M_{\text{near/no pr}} = 5\%$ ;  $\chi^2(1) = 6.70, p = .01$ ). However, when exposed to price information, a greater percentage of participants in the near-future condition chose the high-functionality option ( $M_{\text{near/no pr}} = 5\%$  vs.  $M_{\text{near/pr}} = 38\%$ ;  $\chi^2(1) = 6.17, p = .01$ ), whereas there was no change in the choices for the distant future ( $M_{\text{dis/no pr}} = 41\%$  vs.  $M_{\text{dis/pr}} = 45\%$ ;  $\chi^2(1) = .07, p = .79$ ), leading to choice consistency over time ( $M_{\text{dis/pr}} = 45\%$  vs.  $M_{\text{near/pr}} = 38\%$ ;  $\chi^2(1) = .24, p = .62$ ). Participants' relative preferences fully replicated their choice patterns ( $F(1, 77) = 6.53, p = .01$ , for an interaction; see table 1 for means).

Experiment 1 provided initial support for our prediction. When no price information was given, consistent with CLT (Lieberman and Trope 1998; Trope and Liberman 2003; Zhao et al. 2007), consumers preferred the high-functionality option in the distant future and the easy-to-use option in the

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**TABLE 1**  
CHOICE AND RELATIVE PREFERENCE FOR EXPERIMENTS 1–4

	No price		Near future	Distant future	Near future	Distant future	Near future	Distant future
	Near future	Distant future						
Price (\$349.99 vs. \$429.99)*								
Experiment 1—digital camera:								
% choosing high-functionality option	5	41	38	45				
Relative preference	4.16	7.00	6.59	6.41				
			High price (\$200)		Low price (\$10)			
Experiment 2—software package:								
Relative preference	4.86	8.17	6.75	7.48	6.50	7.05		
			Price (\$119)		Money (no price)			
Experiment 3—software package:								
% choosing high-functionality option	28	72	59	72	63	71		
Relative preference	5.72	7.72	6.79	7.46	6.86	7.08		
			Price/functionality more valuable (\$219.99)		Price/convenience more valuable (\$219.99)			
Experiment 4—digital camera:								
% choosing high-functionality option	35	79	90	83	41	52		
Relative preference	6.10	7.74	8.37	8.33	5.75	6.80		

\*The price of the high-functionality option was \$429.99, and the price of the high-convenience option was \$349.99.

near future. However, when price information was provided, consumers' near-future preference was shifted toward the high-functionality option, and inconsistent preference over time was reduced. This finding is noteworthy given that CLT typically assumes that price is a feasibility cue because it represents the affordability of a choice and, thus, seeing a higher price for the high-functionality option should further decrease preference for this option in the near future. However, in our study, we found that seeing a higher price for the high-functionality option could actually enhance preference toward this option for the near future. Additional implications of this point will be further addressed in the general discussion.

## EXPERIMENT 2

Although employing different marketplace prices across two options could represent a more realistic purchase decision, it could be confounded with consumers' price heuristics. That is, people prefer the high-functionality option in the near future not because the presence of the price information prompts them to focus more on the functionality of the product, but because they simply want a more expensive product due to their heuristics that products with high prices must be better (Carpenter et al. 1994). In addition, different price levels across the two options might also be confounded with affordability. To control for these potential confounds, we kept the price constant across two product options in later experiments to examine consumers' consideration of similarly priced products that trade off functionality and convenience. Such trade-offs within the same price range are ubiquitous in the life of any consumer, as many are willing to pay a premium for convenience (Carlson

and Gieseke 1983; Marmorstein, Grewal, and Fishe 1992). For example, a software package that is basic but highly user-friendly can cost as much as a more advanced software that is difficult to use. Similarly, an office cafeteria at work that offers a basic selection of foods but great convenience can charge as much as a cafeteria that requires a 20-minute walk but offers a better selection. In addition, to confirm that the effect of price we hypothesized does not depend on a specific price level (i.e., it does not occur only for a high price), in experiment 2, we examine whether the effect holds when the prices for both options are consistently high or low.

## Design and Procedure

One hundred and thirty-three students at the University of Toronto were recruited for course credit and randomly assigned to six conditions in a 2 (time: near future vs. distant future)  $\times$  3 (price: no price vs. same high price vs. same low price) between-subjects design. To replicate our findings using established stimuli in the literature, in experiment 2 we adapted the software package stimuli from previous research (Zhao et al. 2007). Similar to the procedure in Zhao et al. (2007), participants were asked to imagine that an important project (a photo essay) for one of their classes was due either in 1 week (near future) or at the end of the semester, which was about 3 months from the time participants completed the questionnaires (distant future). To accomplish the project, they were required to use a photo album software package. In the no-price conditions, participants were told that there were two free software packages from which they could choose. In the price conditions, they were told that they needed to buy one of the two software

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packages to create their photo album, and the price of the two was the same. We included two price conditions to demonstrate that our hypothesized effect is due to the presence of price information rather than a specific price level. In the high-price conditions, the price for both software packages was \$200, and in the low-price conditions, the price was \$10. All participants were also told that all projects would be graded and then posted on the Web.

After these descriptions, two options were introduced. Software package A (the high-convenience option) had limited image-editing features (e.g., limited themes, basic layout tool). However, this package had a low level of usage difficulty (e.g., 10 minutes for downloading, installation, and tutorial) and a small file size. Software package B (the high-functionality option) had complete image-editing features (e.g., numerous predesigned themes, improved layout tools, and wide selection for customized designs). However, this package had a medium level of usage difficulty (e.g., 45 minutes for downloading, installation, and tutorial) and a large file size. The order of the software packages was counterbalanced. A pretest in which we asked 49 participants to name their expected market price for each software package in a between-subjects design showed that there was no significant difference in expected market price for the two packages ( $M_{hi\ func} = \$84.58$  vs.  $M_{hi\ conv} = \$74.31$ ;  $F(1, 47) = .20$ ,  $p = .65$ ). After reading the product information, participants were asked to indicate their relative preference on a 10-point scale, anchored by 1 = "definitely prefer A" (the high-convenience option) and 10 = "definitely prefer B" (the high-functionality option).

## Results and Discussion

*Relative Preference.* A two-way ANOVA showed a main effect of time ( $F(1, 127) = 11.12$ ,  $p < .01$ ) and an interaction between time and price ( $F(2, 127) = 3.81$ ,  $p < .05$ ). No main effect of price ( $F(2, 127) = .59$ ,  $p = .56$ ) was observed (see table 1 for means). Again, in the no-price conditions, participants in the distant-future condition preferred the software with higher functionality more than did participants in the near-future condition ( $M_{dis/no\ pr} = 8.17$  vs.  $M_{near/no\ pr} = 4.86$ ;  $F(1, 43) = 18.80$ ,  $p < .001$ ). When price information was present, consistent with the findings in experiment 1, preference for the high-functionality option for the near future increased in both the \$10 conditions ( $M_{near/no\ pr} = 4.86$  vs.  $M_{near/\$10} = 6.50$ ;  $F(1, 40) = 3.05$ ,  $p = .08$ ) and the \$200 conditions ( $M_{near/no\ pr} = 4.86$  vs.  $M_{near/\$200} = 6.75$ ;  $F(1, 44) = 4.74$ ,  $p < .05$ ), whereas there was no change in distant-future preferences in both the \$10 conditions ( $M_{dis/no\ pr} = 8.17$  vs.  $M_{dis/\$10} = 7.05$ ;  $F(1, 42) = 2.41$ ,  $p = .13$ ) and the \$200 conditions ( $M_{dis/no\ pr} = 8.17$  vs.  $M_{dis/\$200} = 7.48$ ;  $F(1, 44) = 1.38$ ,  $p = .25$ ), leading to preference consistency over time in both the \$10 conditions ( $M_{near/\$10} = 6.50$  vs.  $M_{dis/\$10} = 7.05$ ,  $F < 1$ ) and the \$200 conditions ( $M_{near/\$200} = 6.75$  vs.  $M_{dis/\$200} = 7.48$ ;  $F(1, 45) = 1.02$ ,  $p = .32$ ). No difference between the \$10 and \$200 conditions was found either for participants' near-future or distant-future preferences (both  $F < 1$ ).

Experiment 2 replicated the effect of price information on preference consistency over time while holding the price constant for both options. When no price information was provided, we replicated preference inconsistency over time as indicated in previous research (Zhao et al. 2007). However, when price information was provided, inconsistent preference over time was attenuated. Consumers preferred the high-functionality option even when their product decision was for the near future. Further, these results show that the specific level of price did not matter. The effect of price information on consistent preference for the high-functionality option over time was not a response to the high price only, but to the presence of price. A price as low as \$10 for the software package also served as a cue to switch preference to the high-functionality product.

## EXPERIMENT 3

Thus far, we have obtained strong evidence for our prediction that price information shifts near-future preference toward high-functionality products and leads to consistent preference over time. We observe this effect regardless of whether the prices of two options are different (experiment 1) or the same (experiment 2) and whether the prices are (consistently) high or low (experiment 2). We argue that this change in near-future preference is due to consumers' value-seeking tendency, which surfaces when they see price information, and the subsequent increase of functionality importance. To further demonstrate that the effect does not depend on the specific price level but is primarily due to the value-seeking tendency after considering price or money, we simply prime money in experiment 3. Further, we test the mediating role of the perceived importance of functionality as a response to being primed with price or money.

According to prior research, priming money elicits a market-pricing orientation (Vohs, Mead, and Goode 2006), which makes consumers consider what to receive in exchange for what they provide (Fiske 1991). We suggest that this market-pricing orientation can make consumers think about the monetary worth of the product, which will lead to the same value-seeking tendency and enhanced functionality focus that price information induces. To prime participants with the concept of money, we asked participants to count \$1 bills (Yang et al. 2013; Zhou, Vohs, and Baumeister 2009).

## Design and Procedure

One hundred seventy-eight students were recruited from Washington University in St. Louis and received course credit for their participation. The experiment employed a 2 (time: near future vs. distant future)  $\times$  3 (priming: no price vs. price vs. money) between-subjects design.

Participants were told that they were going to participate in two ostensibly unrelated studies. In the first study in which we primed money, they were told that we were interested in how skillful university students are in using their fingers. Participants in the no-price condition and the price condition

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were asked to count out a stack of paper cards five times as fast as possible, whereas participants in the money condition were asked to count out a stack of \$1 bills five times as fast as possible (Yang et al. 2013; Zhou et al. 2009).

After participants finished the first study, they were asked to complete the second study in which we provided them with a questionnaire about the target software package choice similar to the stimuli used in experiment 2: an easier-to-use option with basic image-editing features versus a difficult-to-use option that provides complete image-editing features. Participants in the no-price condition and the money condition were not provided with price information, whereas participants in the price condition were told that the price of each of the two software packages was \$119. All participants were asked to indicate their choice and preference between the two software packages on the basis of an 11-point scale. Further, they were asked to rate the importance of functionality and convenience in their decision by answering to what extent their decision was driven by the functionality and usage convenience of the software packages on two separate 11-point scales (1 = "not at all" vs. 11 = "very much so").

## Results and Discussion

*Relative Preference and Choice.* A two-way ANOVA showed a significant main effect of time ( $F(1, 172) = 9.19, p < .01$ ) and an interaction between time and price ( $F(2, 172) = 2.74, p = .06$ ). No main effect of priming ( $F(2, 172) = .58, p = .56$ ) was observed (see table 1 for means). Again, in the no-price conditions in which participants were asked to count the paper cards and did not receive price information, more participants in the distant-future condition preferred the software with more features but requiring greater effort than did participants in the near-future condition ( $M_{\text{dis/no pr}} = 7.72$  vs.  $M_{\text{near/no pr}} = 5.72$ ;  $F(1, 56) = 13.33, p < .01$ ). When participants were exposed to price information, consistent with findings in experiments 1 and 2, their near-future preference increased toward this high-functionality/low-convenience option ( $M_{\text{near/no pr}} = 5.72$  vs.  $M_{\text{near/pr}} = 6.79$ ;  $F(1, 61) = 3.94, p = .05$ ), whereas little change was observed in the distant-future condition ( $M_{\text{dis/no pr}} = 7.72$  vs.  $M_{\text{dis/pr}} = 7.46$ ;  $F < 1$ ). As a result, participants' preference across time became consistent after seeing the price information ( $M_{\text{near/pr}} = 6.79$  vs.  $M_{\text{dis/pr}} = 7.46$ ;  $F(1, 64) = 1.54, p = .22$ ). When participants were primed with money (by counting \$1 bills), their preference changes mirrored those in the price conditions: participants' near-future preference increased toward the high-functionality/low-convenience option ( $M_{\text{near/no pr}} = 5.72$  vs.  $M_{\text{near/money}} = 6.86$ ;  $F(1, 57) = 4.54, p < .05$ ), whereas little change of distant-future preference was observed ( $M_{\text{dis/no pr}} = 7.72$  vs.  $M_{\text{dis/money}} = 7.08$ ;  $F(1, 51) = 1.30, p = .26$ ), leading to consistent preference over time ( $M_{\text{near/money}} = 6.86$  vs.  $M_{\text{dis/money}} = 7.08$ ;  $F < 1$ ). Participants' choices fully replicated the patterns of their preferences ( $\chi^2(5) = 17.84, p < .01$ ; see table 1).

*Increased Functionality Importance as the Mediator.* To test the mediating role of increased functionality importance

as a response to seeing price/money, we first ran a regression analysis that showed an interactive effect of time and price/money on the functionality importance ( $b = -.24, t(174) = -1.88, p = .06$ ), suggesting that priming price or money caused a greater shift in the functionality importance in the near future than it did in the distant future. To test whether the differential change of preference at different points in time was due to the change in the functionality importance after seeing price information or being primed with money, we performed 1,000 bootstrap resamples using Preacher and Hayes's (2008) SPSS macro, as recommended by Zhao, Lynch, and Chen (2010). To test the significance of the indirect pathway (i.e., the path from price/money to preference over time via functionality importance), we considered the bias-corrected 95% confidence interval (CI). Because this interval ( $-.3550$  to  $-.0070$ ) did not include zero and the effect of time by price/money on preference became nonsignificant after we controlled for functionality importance ( $b = -.08, t(173) = -1.24, p = .21$  vs.  $b = -.25, t(174) = -2.26, p = .02$ ), we conclude that increased functionality importance mediated the effect of time and price/money on preference consistency. We conducted additional mediating analyses using the convenience importance ( $b = -.26, 95\% \text{ CI} = -.4237, -.0840$ ) or the difference between functionality and usage convenience importance ( $b = -.25, 95\% \text{ CI} = -.4429, -.0687$ ) as mediators, respectively, and obtained the same results.

Experiment 3 provides additional support for our hypothesis by priming consumers with money. The results show that presence of money can produce the same effect as presenting the price of the focal products since both can activate a value-seeking tendency. The lay belief that greater functionality is more valuable enhances the functionality importance for the near future and yields preference consistency over time. The mediation analyses confirm that enhanced functionality importance upon considering price or money in the near future drives the increased near-future preference toward the high-functionality product. These findings further confirm that the effect of price on preference consistency over time is not based on a particular price level.

## EXPERIMENT 4

Experiments 1–3 provide convergent evidence to confirm the effect of price/money on preference consistency over time. One underlying assumption is that when considering whether a product is worth the money to be spent, people intuitively believe that more features and greater functionality mean higher value. If this lay belief is what drives the effect, we should observe a different pattern if we advocate the opposite belief that greater convenience represents higher value. Prior research has demonstrated that consumers are often willing to pay a premium for convenience to save time and effort (Carlson and Gieseke 1983; Marmorstein et al. 1992), implying that consumers sometimes do value convenience. Currently, there is a growing trend in the marketplace for products that provide greater convenience since a substantial portion of consumers have very

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busy and tight schedules. Apple iPad is one of the good examples that meet consumers' need for greater convenience because it provides intuitive and easy-to-use features yet its functionality is limited compared with a regular laptop.

To prompt consumers to seek value in functionality or convenience when seeing price information, we manipulated consumers' lay belief in what price signals. When the lay belief that price signals functionality (and thus functionality is more valuable) is confirmed, we expect to replicate our earlier findings. However, when consumers are led to believe that price signals convenience (and thus convenience is more valuable), we believe that price information and the associated value-seeking tendency will lead to a greater focus on convenience and thus change distant-future preference toward the easy-to-use option, leading to preference consistency over time for the high-convenience product.

## Design and Procedure

One hundred and eighty-two students were recruited from the University of Toronto and received course credit for participation. They were randomly assigned to six conditions in a 2 (time: near future vs. distant future)  $\times$  3 (price: no price vs. price/functionality more valuable vs. price/convenience more valuable) between-subjects design.

Similar to experiment 1, participants evaluated two (fictitious) digital cameras that traded off between functionality and convenience. Digital camera A (the high-convenience option) offered basic features, but it had an intuitive menu with a low level of learning difficulty. Digital camera B (the high-functionality option) offered complete features but had a high level of learning difficulty for complete functionality. The procedure of this experiment was similar to that of experiment 1, with the addition of value-related lay belief manipulation before the main task.

To manipulate participants' lay belief about what represents higher value, we presented fabricated research evidence promoting either the price-functionality or price-convenience association. To support the belief that greater functionality is more valuable, participants read that prior research has found that price is highly associated with functionality. That is, the price of a product generally signals the functionality of the product (e.g., more features). To support the belief that greater convenience is more valuable, participants were told that prior research has found that price is highly associated with convenience. In other words, the price of a product generally signals its convenience. To reinforce the lay belief manipulation, we asked all participants to recall and describe an example of their personal purchase experience that supported the scientific findings they had just read. Participants in the no-price condition completed a filler task that took about the same amount of time.

After this task, we asked participants to complete a similar digital camera study as in experiment 1. We did not provide price information in the no-price conditions, while providing the same price information (\$219.99) in the price conditions. As in experiment 1, we measured participants' choice and relative preference. Further, we asked participants to rate

how much knowledge they had about digital cameras on a 7-point scale (1 = "very little" vs. 7 = "very much") and to what extent they found the recent research findings plausible on an 11-point scale (1 = "not at all" vs. 11 = "very much"). We did not find any differences in the plausibility of the research finding in the two experimental conditions (all  $F < 1$ ), indicating that our manipulation of what is more valuable was successful.

## Results and Discussion

*Choice and Relative Preference.* An overall chi-square test revealed significant differences across conditions ( $\chi^2(5) = 38.28, p < .001$ ; see table 1). When no price was provided, significantly more participants in the distant-future condition chose the high-functionality option than in the near-future condition ( $M_{\text{dis/no pr}} = 79\%$  vs.  $M_{\text{near/no pr}} = 35\%$ ;  $\chi^2(1) = 13.04, p < .001$ ). When the lay belief that higher functionality is more valuable was supported, we replicated our findings in experiments 1–3: a greater percentage of participants chose the high-functionality option after seeing the price information in the near future ( $M_{\text{near/no pr}} = 35\%$  vs.  $M_{\text{near/func}} = 90\%$ ;  $\chi^2(1) = 19.44, p < .001$ ), whereas there was no change in the distant future ( $M_{\text{dis/no pr}} = 79\%$  vs.  $M_{\text{dis/func}} = 83\%$ ;  $\chi^2(1) = .18, p = .67$ ), leading to preference consistency over time for the high-functionality option ( $M_{\text{dis/func}} = 83\%$  vs.  $M_{\text{near/func}} = 90\%$ ;  $\chi^2(1) = .62, p = .43$ ). When the belief that higher convenience is more valuable was supported, we found no change in the near future ( $M_{\text{near/no pr}} = 35\%$  vs.  $M_{\text{near/conv}} = 41\%$ ;  $\chi^2(1) = .24, p = .62$ ), as people naturally focused on convenience in the near future and thus the lay belief manipulation was redundant. However, we observed reduced choice of the high-functionality option in the distant future after seeing price information ( $M_{\text{dis/no pr}} = 79\%$  vs.  $M_{\text{dis/conv}} = 52\%$ ;  $\chi^2(1) = 4.44, p < .05$ ), leading to preference consistency toward the high-convenience option ( $M_{\text{dis/conv}} = 52\%$  vs.  $M_{\text{near/conv}} = 41\%$ ;  $\chi^2(1) = .70, p = .40$ ). Participants' relative preferences fully replicated their choice patterns ( $F(2, 175) = 2.39, p = .09$ , for an interaction controlling for product knowledge; see table 1 for means).

Experiment 4 demonstrated the important role of consumers' belief in value in product choices: When participants' lay belief that functionality was more valuable was confirmed, we replicated the effects of price observed in experiments 1–3. This replication provided indirect support that these effects in earlier experiments were indeed based on people's lay theory of value in functionality. However, when participants were made to believe that convenience is the more valuable aspect, price information and the associated value-seeking tendency shifted their distant-future preference toward the easy-to-use option, resulting in an alternative route to preference consistency over time.

## GENERAL DISCUSSION

Past research has shown that consumers prefer high-desirability products when contemplating the distant future but

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switch their preferences toward high-feasibility products when the decision comes near (Liberman and Trope 1998; Soman 2004; Zhao and Xie 2011; Zhao et al. 2007). This often leads to negative consequences such as regret and lower customer satisfaction (Soman 2004; Zauberma and Lynch 2005). Drawing on research on consumer heuristics that shows consumers' value-seeking tendency when seeing price (Hsee 1999; Thaler 1985; Yeung and Soman 2007) and their belief that more features represent greater value (Brown and Carpenter 2000; Carpenter et al. 1994; Yeung and Soman 2007), we propose that presenting price information increases consumers' focus on the functionality of the product rather than the usage convenience, even if the decision is for the near future.

Across four experiments with different products that involve functionality/convenience trade-offs, which would generally provoke preference inconsistency over time, we demonstrated that price information increases consumers' preference for the high-functionality options for the near future (while having little impact on preference for the distant future) and leads to consistent preference over time. The effect of price on preference consistency over time was robust whether the price was different (experiment 1) or the same (experiments 2 and 4) across both product options, whether the prices were around the market price (experiments 1 and 4) or very high/very low (experiment 2) and when the price information was not even shown and participants were merely primed with the concept of money (experiment 3). Mediation analyses further showed that it was the increased functionality importance after seeing price information that drove this effect. Confirming the important role of consumers' belief in what represents higher value, we also show that when consumers are made to believe that greater convenience represents higher value, their value-seeking tendency leads them to seek more convenience for distant-future decisions and to prefer the easy-to-use option, which is consistent with their natural near-future preferences (experiment 4).

### Theoretical Contributions and Implications

Our findings contribute to several research domains. First, our results add to an existing body of work on choice over time. Previous research has identified various negative consequences of inconsistent preference over time including regret, dissatisfaction, and failure to fulfill a goal (Soman 2004; Zauberma and Lynch 2005), and a number of strategies have been proposed to overcome preference inconsistency over time, such as mental rehearsal or forming implementation intentions when making a decision for a distant-future task (Gollwitzer 1999; Trope and Liberman 2003), focusing on long-term benefits to strengthen self-control (Hoch and Loewenstein 1991), and practicing process versus outcome simulation at a different point in time (Zhao et al. 2007). We extend this stream of research by demonstrating that without the external aid of complex strategies, simply highlighting price information enhances consumers' near-future preference toward products high in func-

tionality and thereby increases preference consistency over time. This enhanced preference toward the high-functionality products for the near future could potentially help consumers stay committed to their chosen products and be more satisfied with their choices in the long term.

Our findings also add to previous literature on the effect of price on consumer preference. Prior research has shown that price can increase consumption enjoyment (Plassmann et al. 2008) or enhance consumer involvement by increasing the level of thinking (Wathieu and Bertini 2007). Our findings present another instance in which price can play a role in consumer decisions by illustrating that price can highlight desirability considerations and shift consumers' near-future preferences, leading to preference consistency over time. Our premise that price increases focus on desirability has interesting implications for CLT (Liberman and Trope 1998; Trope and Liberman 2003). While one would infer on the basis of CLT that price is a feasibility cue since it signals the affordability of a product, we draw on prior research on consumer heuristics (Hsee 1999; Thaler 1985; Yeung and Soman 2007) and suggest that price could also trigger desirability thinking due to a strengthened value-seeking tendency and consumers' lay belief that functionality is the value-defining aspect. This (biased) value inference that ignores the feasibility aspect is consistent with findings in prior literature that show, for example, consumers' irrational preference toward a locksmith who spent 20 minutes unlocking the door over a locksmith who carried out the task in 5 minutes (Yeung and Soman 2007). In this sense, our results also add to prior work on consumer heuristics in judgment and decisions (Tversky and Kahneman 1973, 1974). While we manipulated the presence of price information in our studies, we believe our findings are applicable in real life scenarios in which prices are available yet neglected by consumers. That is, when the prices of different product options fall within the similar range, consumers could overly focus on other product aspects and ignore the price information. In these instances, our findings suggest that highlighting the price information could nudge consumers to prefer products high in functionality.

In our research, we obtain preference consistency over time by increasing near-future preferences toward high-desirability options while making little change for distant-future preferences. One might argue that price should have further increased distant-future preferences for high-desirability options since both price and a distant future evoke desirability considerations and thus should increase the functionality importance even more, compared to when consumers make distant-future decisions without price information. However, recent research has shown that when different dimensions of psychological distance are involved (e.g., temporal and social), people's combined level of construal will follow a subadditive rule rather than a linear rule (Kim, Zhang, and Li 2008). Our findings are consistent with the subadditive rule in that the combination of the high-level focus due to temporal distance and the high-level focus due to the price information yielded a similar high-level focus

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as that based either on a distant future or on price information. These findings are also consistent with prior research suggesting that the effect of an external factor (i.e., functionality focus due to price information) becomes redundant when it is naturally salient (for the distant future in this case; Zhao et al. 2007).

### Future Research

Our research demonstrated that price information shifts near-future preference toward the high-functionality product and induces preference consistency over time. While preference inconsistency over time can lead to negative consequences as indicated in prior work (Alexander et al. 2008; Soman 2004; Zauberan and Lynch 2005), addressing whether preference inconsistency over time is always a bad thing is beyond the scope of our research. Similarly, we are not arguing that the high-functionality product with richer features is necessarily the “right” choice. In the literature, the consequences of choosing feature-rich options are mixed—such a choice can provide positive social utility (e.g., higher socioeconomic status; Thompson and Norton 2011). However, when using feature-rich options, too many features can make products overwhelming for consumers (Thompson, Hamilton, and Rust 2005). So, depending on the situations that consumers face, choosing feature-rich options can be beneficial or not to consumers. Further, while the focus of our research is how price influences consumers’ preference at the distant-future and near-future decision stages, future research could investigate the effect at other stages such as at the time of payment or actual implementation. It is worthwhile to examine whether the effect of price on preference consistency over time also leads to greater satisfaction at actual consumption, better usage behavior, and other long-term advantages.

Recent research has shown that price can sometimes muddle thinking and lead to preference inconsistency (Lee, Bertini, and Ariely 2013). At first sight, our findings might seem at odds with this finding. However, a closer look at this work reveals that their research domain is very different from ours. While we examined preference among two options for a near-future and distant-future time frame on the basis of the perceived importance of functionality versus convenience, Lee et al. (2013) examined a much more complicated choice scenario in which consumers had to state preferences for 45 pairs of products combined from 10 products, and preference consistency was assessed on the basis of the transitivity rule. According to prior research on decision making, in such a complicated decision scenario, an emotion-based or intuitive decision strategy leads to more accurate estimates than does a cognitive decision strategy (Lee, Amir, and Ariely 2009). Because price evokes rational information processing, we believe that in Lee et al. (2013), price might have disrupted the emotional/intuitive judgment and decreased consumers’ preference consistency. Future research could fruitfully examine how the complexity of decision scenarios and the different types of preference consistency (preference consistency over time or preference

consistency measured by transitivity) are affected by price information.

Our findings open up a number of other worthwhile possibilities for future work. For example, past research has investigated time-dependent changes in preferences based on either affective or cognitive processes. Although price information itself is a cognitive component that can increase people’s involvement in cognitive information processing (Wathieu and Bertini 2007), seeing price information may also elicit a negative affective response such as the pain of paying. A deeper understanding is needed as to how affect might be involved as an additional drive.

Finally, in two of our studies in this research (experiments 2 and 4), we kept the price level of both product options constant (which is supported by marketing practice) to examine consumers’ trade-offs between functionality and convenience in a clean way. In this context where affordability is controlled, we argue that people intuitively infer that greater functionality means higher value while neglecting the importance of convenience, unless we explicitly dispute their lay belief and nudge them to think that greater convenience can also be valuable. While we showed the effect of value-seeking on high-functionality or high-convenience products, one might wonder how a third type of value might play a role. That is, people could also seek superior value in low price (accompanied by low functionality). Because we are focusing on the trade-off between functionality and convenience, and mainly interested in the effect of the presence of price information rather than specific levels of price, we did not intend to extensively study scenarios in which consumers face the trade-off between affordability (another aspect of feasibility) and quality, except in experiment 1 where we presented different prices and still obtained the same results. We believe that as long as consumers think that having more features is worth paying a higher price, we would replicate the findings of experiment 1. However, had we used an extremely low-priced camera in experiment 1 (e.g., a \$29.99 camera with really basic functionality as compared to the \$429.99 camera with great functionality), people might indeed infer superior value in this high-affordability/low-functionality option and prefer it. Future research could fruitfully study how consumers make decisions over time, given the trade-off among functionality and different dimensions of feasibility: convenience and affordability.

### DATA COLLECTION INFORMATION

The first author supervised the collection of data for the first and third studies by research assistants at Washington University in St. Louis in autumn 2012. The first author collected the data of the second study in spring 2009 at the University of Toronto. The first and second authors jointly collected the data of the fourth study at the University of Toronto in autumn 2011. The data of all four studies were analyzed jointly by both authors.

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