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In this research, the authors examine the role of process versus outcome simulation in product evaluation and demonstrate how manipulating the type of information-processing mode (cognitive vs. affective) leads to unique effects in process and outcome simulation. The article begins with the premise that when consumers do not have well-formed preferences for a product, they tend to focus on the usage process. The authors predict and find that outcome simulation is more effective than process simulation in increasing product evaluation under a cognitive mode, whereas process simulation is more effective than outcome simulation under an affective mode. Establishing boundary conditions, the authors further show the effect of two important moderators that alter consumers' focus on/away from the product's usage process. Specifically, they show a reversal of the effect for each type of mental simulation for hedonic products, for which product benefits are the more salient aspect (vs. the usage process). Furthermore, a distant-future (vs. near-future) evaluation frame shifts people's focus away from the usage process toward product benefits and reverses the effect of each type of simulation. The authors conclude with a discussion of theoretical and managerial implications.

Keywords: mental simulation, visualization, product evaluation, time, affect, cognition

Mental Simulation and Product Evaluation: The Affective and Cognitive Dimensions of Process Versus Outcome Simulation

Purchasing products that consumers have not used before can be a challenge (e.g., a baby stroller for first-time parents, a new product such as an iPad). Other products provide consumers with new experiences (e.g., a person's first trip to China, a 3-D movie). A common characteristic of these products and experiences is that although they are not necessarily new to the market, many consumers may not have used or experienced them before. For products for

which consumers have stable existing preferences, consumers often do not need to undertake a deliberative evaluation stage before choice and are less susceptible to the evaluation context. However, for other products, such as those mentioned previously, consumers do not yet have well-formed preferences and need to go through an evaluation stage before forming their preferences (Bettman, Luce, and Payne 1998). In these situations, to increase consumers' product evaluation and purchase intention, advertisers often ask consumers to "Imagine yourself..." interacting with the product or engaging consumers in narrative stories or transformational advertisements during their evaluation stage. How effective are these types of mental imagery strategies? Several studies have suggested that imagining a product experience can have powerful effects on consumers' product attitudes (Escalas 2004; Keller and Block 1997). In our research, we aim to investigate how mentally simulating two specific aspects of a product—the product usage process versus the product benefits—might affect product

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evaluation and how the effectiveness of each aspect might depend on whether the processing mode is cognitive or affective.

Specifically, we build on findings from the mental simulation literature that have identified two key types of simulation: process simulation, which focuses on the process of going through the steps of using a product, and outcome simulation, which focuses on the desirable outcome of using a product (Escalas and Luce 2003, 2004; Pham and Taylor 1999). We examine systematic differences in each type of simulation, with an emphasis on cognitive or affective modes, and probe how these subtle yet important differences in processing modes underscore the effectiveness of each simulation type for increasing product evaluation. Because of people's tendency to overweigh negative information compared with positive information (e.g., Tversky and Kahneman 1991), we believe that when evaluating products that they have never used before, people will focus largely on the usage process, which highlights the potential learning costs. Consequently, we predict that under a cognitive mode, outcome simulation (i.e., thinking about the product benefits) leads to more favorable product evaluations than process simulation (i.e., thinking about the usage process) because it highlights the naturally underweighted product benefit information (Zhao, Hoeffler, and Zauberan 2007). In contrast, under an affective mode, we predict that process simulation will lead to more favorable evaluations than outcome simulation because of enhanced affective immersion related to thinking about the detailed steps during the usage process (Debevec and Romeo 1992). Finally, when people's natural focus shifts away from the usage process toward the product benefit, we expect this pattern to reverse.

In our research, we study decisions about products for which consumers do not yet have strong or well-defined preferences. This is a theoretical necessity only to the extent that when consumers already have established preferences, interventions such as mental simulation are unlikely to have strong effects. Consistent with prior literature on preference construction (e.g., Bettman, Luce, and Payne 1998), in general, the constructed nature of preference and context dependence apply more to products with relatively less developed preferences and less so to products for which consumers have well-formed preferences. Thus, to address our research question, consistent with the preference construction literature (Bettman, Luce, and Payne 1998), we examine products for which consumers do not have well-formed preferences.

We present three experiments that test these predictions. In Experiment 1, which is based on the evaluation of a product called an AudioPC, we confirm that under a cognitive mode, outcome simulation results in more favorable product evaluations, and under an affective mode, process simulation leads to more favorable evaluations. In Experiments 2 and 3, we shift participants' focus away from the usage process with different approaches to test two important moderators, each designed to shift attention away from usage costs. In Experiment 2, we compare a utilitarian product (Tablet PC) with a hedonic product (iPad) and replicate the interactive effect of simulation type and processing mode with one type of product and reverse it with another. Specifically, with the utilitarian product (for which usage

process is a major consideration), we replicate the results from Experiment 1, and we reverse the effect with a hedonic product (for which experiential enjoyment is the central focus and the usage process is a less salient consideration). In Experiment 3, we compare product evaluation of a software package under different temporal perspectives that are designed to shift the focus on potential usage costs (Trope and Liberman 2003). We replicate the effect of simulation type and processing mode for near-future evaluations (in which people's natural focus is on the usage process) and find that the opposite occurs for distant-future evaluations (in which people's natural focus is shifted away from the usage process toward the product benefits). Results from these three experiments provide converging evidence for our central premise that under a cognitive-focused mode, simulating the naturally ignored product aspect leads to more favorable product evaluation, and under an affective-focused mode, simulating the naturally salient product aspect leads to more favorable product evaluation.

We divide the remainder of this article into three broad sections. First, we review relevant literature on mental simulation and the distinction between affective and cognitive processing modes to develop our theoretical framework and identify key moderators. Second, we describe the results of three experiments designed to test our conceptual framework. Finally, we provide with a general discussion, offer directions for further research, and discuss managerial implications.

PROCESS- VERSUS OUTCOME-FOCUSED MENTAL SIMULATION

Mental simulation is the imitative mental representation of events (Taylor and Schneider 1989). The role of mental simulation or mental imagery has been widely studied in various areas of psychology (Taylor et al. 1998) and in different marketing contexts (e.g., MacInnis and Price 1987; Shiv and Huber 2000; Zhao, Hoeffler, and Dahl 2009). However, there is strong evidence that not all types of mental simulation are equally effective in changing behavior. Research in psychology has identified two distinct types of mental simulation: process simulation, which focuses on the process of going through the steps of reaching a goal, and outcome simulation, which focuses on the desirable outcome of achieving the goal (Pham and Taylor 1999). For example, Pham and Taylor's (1999) classic study about preparing for an exam had participants in the process simulation condition visualize the process of preparing for an exam—sitting at their desks, on their beds, or at the library; studying the chapters; and going over the lecture notes. In contrast, participants in the outcome simulation condition imagined the outcome of an exam—achieving an A, beaming with joy, and feeling confident and proud. Applying mental simulation in the marketing literature, researchers have asked participants to imagine the process of using a product and focusing on how they would incorporate the product into their daily routine for process simulation and imagining the end benefits that they would receive from using the product for outcome simulation (Escalas and Luce 2003, 2004).

These and multiple other studies in psychology and marketing have shown that process simulation is more effective than outcome simulation in facilitating goal attainment

(e.g., Taylor et al. 1998) and increasing behavioral intentions (Escalas and Luce 2003, 2004) because it facilitates a spontaneous planning process. For example, in the exam preparation study cited previously, Pham and Taylor (1999) find that participants who engage in process simulation and think about how to study for the exam spend more time studying for a midterm and achieve a higher grade than participants who engage in outcome simulation and imagine how great it would be to get a high grade. In the consumer domain, Escalas and Luce (2003, 2004) show that advertisements that emphasize the process of using the product facilitate higher intentions to use the product because it facilitates a spontaneous planning process than advertisements that emphasize the benefits of using the product. Recent research (Zhao, Hoeffler, and Zauberan 2007) has further examined the effect of mental simulation on preferences over time, demonstrating that each type of simulation (process or outcome) is more effective when it augments the mental representation of an event that is naturally neglected. Taking a slightly different perspective and offering different insights, Thompson, Hamilton, and Petrova (2009) show that compared with outcome simulation, process simulation highlights the benefit–effort trade-offs of a product and increases decision difficulty, leading to lower commitment to choices and lower task performance.

COGNITIVE VERSUS AFFECTIVE PROCESSING MODES

In this article, we further extend existing research on process versus outcome simulation and explore the impact of a cognitive or an affective processing mode toward the goal of enhancing product evaluation. Our predictions are based on a well-known distinction in behavioral research: Whereas cognitive information processing is based on “cold,” deliberate, and analytic thinking, affective information processing is based on “hot,” rapid, and emotional feelings (Epstein 1994; Metcalfe and Mischel 1999). A large body of research has examined the role of affective and cognitive processing modes and has demonstrated that focusing on the cognitive versus affective components leads to very different attitudes (Edell and Burke 1987), evaluations (Zauberan, Diehl, and Ariely 2006), and decisions (Dhar and Wertenbroch 2000; Hsee and Rottenstreich 2004; Metcalfe and Mischel 1999; Shiv and Nowlis 2004).

We argue that the existing mental simulation literature has combined cognitive and affective components to varying degrees, which might have masked some of their unique effects. In the psychology literature (e.g., Pham and Taylor 1999; Taylor et al. 1998), instructions for process simulation commonly prompt people to emphasize the cognitive components, such as the step-by-step process of doing something, whereas instructions for outcome simulation encourage people to focus on the affective components, such as *feeling* the joy of achieving something. In the consumer behavior literature, researchers have attempted to overcome this problem by incorporating both cognitive and affective components within each type of simulation (process and outcome) so that simulation type and information-processing mode are no longer confounded (Escalas and Luce 2003, 2004). However, although this approach unconfounds affective and cognitive aspects and simulation type, it does not answer whether there are unique effects of each type of

simulation under each specific mode (because they did not isolate the impact of cognitive and affective simulation). Although the major findings in the classic mental simulation literature have indicated a more positive effect of process simulation, with only recent research suggesting mixed findings, we argue that process and outcome simulation can each have unique and predictable effects under different processing modes, which then has consequences for the impact of mental simulation on product evaluations.

We believe this question of cognitive versus affective processing modes is particularly critical for products for which consumers do not have well-formed opinions, because having both components in each type of simulation could lead to interference between the two mental processes that are central to changes in evaluations. For example, as prior research has indicated, consumers have both cognitive and affective uncertainty associated with products with which they have limited experience (Castano et al. 2008; Hoeffler 2003). In this coexistence of cognitive and affective responses, the affective response (e.g., overall anxiety) might influence cognitive processing because affect could easily precede the cognitive inputs and bias cognitive thinking (Epstein 1994). Conversely, cognitive information-processing modes (e.g., trying to decipher unfamiliar product information) might subsequently lead to negative affective responses (Garbarino and Edell 1997). Thus, our approach is to tease apart cognitive and affective processing modes with orthogonal manipulations to investigate the unique effect of each mode on product evaluation.

Cognitive Processing Mode

The key question here is whether a cognitive processing mode would lead to more favorable evaluations with process or outcome simulation. Prior research with a cognitive perspective indicates that for products that consumers have not used before, consumers naturally focus more on the product usage process (i.e., learning cost) than product benefits (Mukherjee and Hoyer 2001). Furthermore, this research has indicated a negative impact on evaluations when consumers focus on the usage process and the associated learning cost. Moreover, other studies have shown that it is difficult for consumers to visualize the detailed cognitive process of how they would use the features of an unfamiliar product, leading to less favorable evaluations (Dahl and Hoeffler 2004).

Given consumers' primary focus on the product usage process and the associated costs during the evaluation stage, how could marketers enhance product evaluation? Prior work has indicated that for these products, switching consumers' cognitive focus from the usage process to the product benefits increases product evaluations (Mukherjee and Hoyer 2001). Also, recent studies in the mental simulation literature have shown that each type of mental simulation is effective when it augments the naturally ignored aspect of the product (Zhao, Hoeffler, and Zauberan 2007). Our interpretation of these prior findings leads us to predict that when consumers go through the product evaluation stage under a cognitive mode, outcome simulation (i.e., thinking about the product benefit) could be more effective at enhancing evaluation than process simulation (i.e., thinking about the usage process) because it will shift attention away

from the learning cost toward the otherwise underweighted product benefits.

Affective Processing Mode

The key question here is whether an emphasis on an affective processing mode will enhance process or outcome simulation. Research on narrative self-referencing has demonstrated that when people relate a product to themselves, an affective orientation (rather than a cognitive orientation) results in less critical analysis of the arguments, fewer negative thoughts, and stronger affective responses because of the “immersion-into-a-text” effect, which in turn enhances attitude toward the product (Burnkrant and Unnava 1989, 1995; Debevec and Romeo 1992; Escalas 2004, 2007; Green and Brock 2000; West, Huber, and Min 2004). Given this consumer tendency, would process or outcome simulation lead to more affective immersion and be more effective in shifting preferences? Prior research has shown that relating oneself to the steps of achieving the goal (i.e., being process oriented) is more likely to evoke an affective response than relating oneself to the product’s benefits (i.e., being benefit-oriented) because the mental representation of the usage steps is usually more readily available whereas the representation of the benefits is more abstract (Debevec and Romeo 1992). Given that for products for which consumers have less developed preferences, consumers’ mental images of product benefits are usually not as salient as those associated with the usage process (Debevec and Romeo 1992; Mukherjee and Hoyer 2001), we predict that under an affective mode, process simulation will result in more positive product evaluation than outcome simulation.

Combining our reasoning about cognitive and affective processing modes, we predict the following:

H₁: Process and outcome simulation has a differential effect under specific processing modes such that (a) under a cognitive mode, outcome simulation leads to more favorable product evaluations than process simulation and (b) under an affective mode, process simulation leads to higher product evaluations than outcome simulation.

SWITCHING FOCUS FROM USAGE PROCESS TO PRODUCT BENEFITS

H₁ is based on the assumption that consumers naturally focus more on the usage process of a product (Mukherjee and Hoyer 2001). If the salience of a particular product aspect is truly the key to the specific pattern of preferences we predict, then if we switch consumers’ natural focus toward the product, such that the usage process is underweighted and product benefits become more salient, the effect of the different types of mental simulation under cognitive and affective processing modes should be reversed, as we detail next.

Following the same premise that a particular type of simulation is more effective when it augments the naturally underweighted product aspect in a cognitive information-processing mode (Zhao, Hoeffler, and Zauberan 2007), we predict that when product benefits become more salient and the usage process is naturally ignored, thinking about the naturally underweighted aspect—how to use the product (i.e., process simulation)—might activate an imagined plan

in terms of how to use the product and lead to more favorable product evaluation. In other words, when the usage process aspect is naturally underweighted, process simulation that activates this naturally ignored usage aspect should lead to a more favorable product evaluation than outcome simulation under a cognitive mode, a reversal of the effect predicted in H_{1a}.

In an affective processing mode, as we described previously, the reason benefit-oriented self-referencing does not lead to sufficient affective immersion is that the mental representation of the product benefits is usually sparse and abstract (Debevec and Romeo 1992). Accordingly, we propose that if we shift the natural focus toward product benefits (such that the mental representation of product benefits become more salient/vivid and the representation of the usage process becomes less salient/vivid), relating oneself to the product benefits using an affective mode would facilitate affective immersion more than relating oneself to the usage process and thus increase product evaluation. That is, when the product benefits become more salient, under an affective mode, outcome simulation should facilitate affective immersion and lead to more favorable product evaluation than process simulation, a reversal of the effect predicted in H_{1b}.

A key precursor of our predicted preference reversal is a shift in the natural focus from usage process toward product benefits. In the current research, we identify two factors that could serve the function of shifting consumers’ focus away from the usage process and toward product benefits. Thus, we test two important moderators of the effect demonstrated in H₁: (1) product type (i.e., utilitarian product vs. hedonic product) and (2) temporal frame (i.e., near future vs. distant future). According to our previous theorizing, the consistent prediction is that under a cognitive-focused mode, simulating the naturally ignored product aspect leads to more favorable product evaluation, and under an affective-focused mode, simulating the naturally salient product aspect leads to more favorable product evaluation. Next, we specify the hypotheses related with each moderator that shifts people’s natural focus toward a product.

Product Type

Prior work that has established consumers’ natural focus on the usage process is based on utilitarian products (e.g., a refrigerator in Mukherjee and Hoyer 2001). When consumers expect functional utility from utilitarian products, it is important for them to get the use out of the product with a minimum amount of time and effort (Babin, Darden, and Griffen, 1994). As such, it is not surprising that they mostly focus on the usage process and the anticipated learning costs. In contrast, hedonic products offer experiential benefits (i.e., fun, pleasure, and excitement; Dhar and Wertenbroch 2000). Ultimately, with hedonic products, consumers are primarily seeking enjoyment. Thus, we believe that they would mainly focus on these experiential benefits when evaluating a hedonic product rather than wondering about the usage process, a reversal of their natural focus for the utilitarian product. Using the rationale described previously, we predict the following:

H₂: Product type moderates the interactive effect between simulation type and processing mode on product evaluation, such that the effect would reverse for hedonic products.

Temporal Frame

Research demonstrating that temporal distance shifts people's natural focus on a product or event suggests another important way to change the salience of different product aspects. Prior research has shown that while near-future events evoke more process-related thoughts, distant-future events evoke more outcome-related thoughts (Liberman and Trope 1998; Trope and Liberman 2003). Applying this to product evaluation, more recent research has shown that when evaluating a product for the near future, consumers will focus more on the usage process and learning costs; however, when they evaluate it for the distant future, they pay more attention to the product benefits (Alexander, Lynch, and Wang 2008; Castano et al. 2008) and no longer perceive the usage process as negative (Eyal et al. 2004). On the basis of the effect of temporal frame on people's natural focus of product attributes, and the key rationale elaborated previously that under a cognitive-focused mode, simulating the naturally ignored product aspect leads to more favorable product evaluation, and under an affective-focused mode, simulating the naturally salient product aspect leads to more favorable product evaluation, we predict the following:

H₃: Temporal frame moderates the interactive effect between simulation type and processing mode on product evaluation, such that the effect would reverse for the distant future.

We conduct three experiments to test our hypotheses. In Experiment 1, we test and confirm H₁ using a product called an AudioPC as the focal product. In Experiment 2, we compare a utilitarian product (Tablet PC) with a hedonic product (iPad). We replicate the interactive effect of simulation type and processing mode on the utilitarian product (H₁) and reverse the effect on a hedonic product (H₂). In Experiment 3, we compare the product evaluation of a software package for the near and distant future. When we replicate the effect of simulation type and processing mode on near-future evaluation (H₁), we observe a reversal on the distant-future evaluation (H₃). Overall, results from these three experiments provide robust evidence for our key theory that under a cognitive-focused mode, simulating the naturally ignored product aspect leads to more favorable product evaluation, and that under an affective-focused mode, simulating the naturally salient product aspect leads to more favorable product evaluation.

EXPERIMENT 1

The purpose of Experiment 1 is to isolate the effect of cognitive versus affective processing modes for each specific mental simulation type (process and outcome) and to investigate whether and when each type of simulation influences product evaluation. To do so, we orthogonally manipulate the cognitive versus affective mode within process and outcome simulation.

Method

One hundred twenty-one students at a major southeastern university completed the experiment to fulfill research participation credit as part of an introductory marketing course. The experiment was a 2 (simulation type: process vs. outcome) × 2 (processing mode: cognitive vs. affective) between-subjects design.

Procedure. Participants were given a mock advertisement that included a picture of a product called an AudioPC. The picture of the AudioPC was taken from a product under development by Sony that has a vertical screen orientation with a smaller inlaid keyboard on the bottom of the product. We removed the company logo removed from the product and eliminated all brand identification information (i.e., the product was called XI-100 in all conditions). The product information sheet had four components: the headline, the picture, a short description underneath the picture, and a set of product features. The headline stated, "The XI-100 is the mobile product for people on the go." The short description underneath the picture paralleled the headline, "The XI-100 ultra-portable notebook gives users outstanding performance in a small and light notebook." After the short description, the product included a list of eight features (see Appendix A). We conducted a pretest based on the XI-100 and a typical affective product in a similar product category (Apple iPad as control) to examine to what extent participants thought the product was a functional versus affect-rich product (1 = "more functional," and 9 = "more affect rich"). The results showed a significant main effect of product ($M_{XI-100} = 5.25$ vs. $M_{iPad} = 6.41$; $F(1, 40) = 5.36$, $p < .05$, $\omega^2 = .12$), confirming that participants perceived the XI-100 as significantly more utilitarian than the iPad.

Participants were randomly assigned to one of four conditions. They received instructions about the specific ways they should examine the product before reviewing the product information. We adopted mental simulation instructions used in prior research (Escalas and Luce 2003, 2004; Zhao, Hoeffler, and Zauberger 2007) but purposely teased apart cognitive versus affective processing modes. In the cognitive conditions, participants were directed to focus either on the process of using the product or on the specific benefits of using the product. In the affective conditions, they were asked to focus on either the specific emotions they might feel about using the product, or the specific emotions they might feel about receiving the product benefits. (Appendix B presents detailed instructions for the mental simulation manipulations.) After participants examined the advertisements with the product information, they had several lines on which to write down their thoughts or feelings. To reinforce our manipulation of the cognitive versus affective modes, these lines began with the words "I would think ..." for cognitive-focused conditions and "I would feel ..." for affective-focused conditions (Kivetz and Keinan 2006). After participants finished this task, they responded to our measures at their own pace.

Measures. We used a four-item measure (i.e., overall evaluations, how participants would rate the XI-100, whether they thought the XI-100 was an excellent product, and their attitude toward the XI-100; $\alpha = .94$) to capture product evaluations. We also measured participants' purchase intention based on two items (i.e., how interested participants were in purchasing the XI-100 and how seriously they considered purchasing the XI-100; $\alpha = .96$).

Coding of written responses. Three research assistants blind to the hypotheses coded the written responses (overall intercoder reliability = .70).¹ The coding showed that par-

¹Disagreements were solved by taking the average of the three coders' coding results.

Participants in the process simulation conditions indeed thought more about the usage process and less about the product benefits than those in the outcome simulation conditions ($M_s = 1.79$ vs. 1.19 for the ratio between process- and outcome-related thoughts; $F(1, 111) = 4.95, p < .05$). Participants in the affective conditions reported more on feelings (versus other considerations) than those in the cognitive conditions ($M_s = 2.51$ vs. $.50$ for the ratio between feelings and other considerations; $F(1, 113) = 40.82, p < .001$). This indicates that our manipulations of simulation type (process vs. outcome) and information-processing modes (affective vs. cognitive) were followed and validates the use of similar simulation instructions for our later experiments. As some examples that show what participants were thinking/feeling under different simulation instructions, under a cognitive focus, in the process simulation condition, a participant wrote, "I would think that I would try to use it to take notes in class. I am a little confused about the description of the pen. Do you need to have the unit and write on it, or can you just bring the pen to class and it remembers what you write so you can transfer it later." In the outcome simulation condition under a cognitive focus, a participant wrote, "I would think this product could help me be more organized and productive. It could also be seen as an office status symbol." Under an affective focus, they wrote "I would feel very high tech and advanced. I would also feel professional and important" in the process condition, and "I would feel happy to be organized, satisfied, and relieved" in the outcome condition.

Results

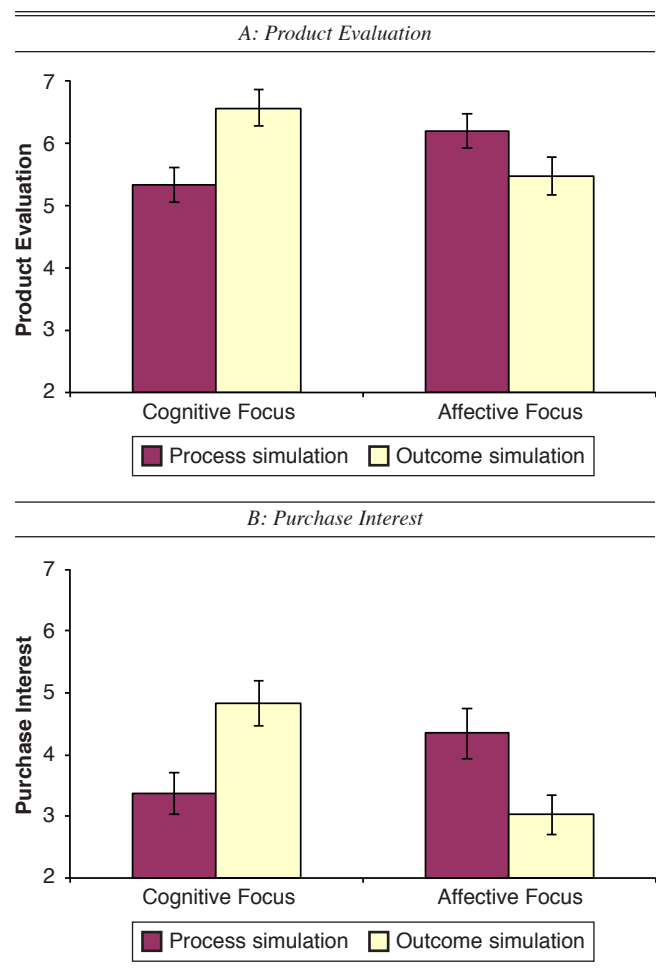
Product evaluation. For the evaluation index of product evaluation, a two-way analysis of variance (ANOVA) showed no main effect of simulation type ($F(1, 117) = .81, p = .37$) or processing mode ($F(1, 117) = .15, p = .71$) but did show the predicted significant interaction between the two factors ($F(1, 117) = 11.37, p < .001, \omega^2 = .10$; see Figure 1). Specifically, under a cognitive mode, outcome simulation increased product evaluations significantly more than process simulation ($M_s = 6.56$ vs. 5.32 ; $F(1, 58) = 9.04, p < .005$), in support of H_{1a} . However, under an affective mode, process simulation was marginally more effective than outcome simulation ($M_s = 6.19$ vs. 5.47 ; $F(1, 59) = 3.08, p = .08$), consistent with H_{1b} .

Purchase intention. Similar to product evaluation, a 2×2 ANOVA based on purchase intention showed no main effect of simulation type ($F(1, 117) = .04, p = .84$) or processing mode ($F(1, 117) = 1.36, p = .25$), but again showed the expected significant interaction between those two factors ($F(1, 117) = 14.84, p < .001, \omega^2 = .11$; see Figure 1). In particular, outcome simulation increased purchase intention significantly more than process simulation under a cognitive processing mode ($M_s = 4.83$ vs. 3.37 ; $F(1, 58) = 8.46, p = .01$), whereas process simulation was more effective in increasing purchase intention than outcome simulation under an affective mode ($M_s = 4.34$ vs. 3.02 ; $F(1, 59) = 6.49, p < .05$). These results provide further support for H_1 .

Discussion

Experiment 1 isolated cognitive and affective information-processing modes to investigate the independent effect of each type of mental simulation on product evaluation and

Figure 1
EXPERIMENT 1 RESULTS



provided direct support for H_1 . Specifically, under a cognitive mode, participants in the outcome simulation conditions indicated more favorable product evaluations than those in the process simulation conditions. However, under an affective mode, process simulation led to more favorable product evaluations than did outcome simulation.

EXPERIMENT 2

To further establish the unique effect of mental simulation strategies under different processing modes, in Experiment 2, we test the moderating role of utilitarian versus hedonic product types (H_2) on the pattern demonstrated in Experiment 1. To manipulate the natural product focus on different aspects of the product, participants were asked to evaluate either a utilitarian product (for which the usage process considerations should be more salient) or a hedonic product (for which enjoyment of interacting with the product as the product benefit should be the primary consideration). Note that in Experiment 1, simulation instructions were given before participants viewed the actual advertisements. Thus, one issue is the applicability of the findings of Experiment 1, because it may be difficult for marketers to give consumers external instructions to focus on a specific type of mental simulation when communicating their prod-

ucts. To address this potential limitation, in Experiment 2, we incorporate the mental simulation instructions into the product advertisements, an approach that marketing managers could more easily adopt.

Method

Three hundred five students at a major North American university completed this study as part of an experimental lab session for which they were paid \$10. The experiment was a 2 (product type: utilitarian vs. hedonic) \times 2 (simulation type: process vs. outcome) \times 2 (processing mode: cognitive vs. affective) between-subjects design.

Procedure. Participants were randomly assigned to one of eight conditions. The procedure was similar to Experiment 1, except for the product type manipulation and the embedded mental simulation instructions in the product advertisements. In terms of product type, half the participants received an advertisement for a utilitarian product that showed a picture of a Sony Tablet, and half received an advertisement for an affective product that showed a picture of an Apple iPad. Because the hedonic product (i.e., iPad) is strongly associated with its particular brand (i.e., Apple), we believed it was important to be consistent; thus, we conveyed the brand information for both products. Moreover, to keep the rest of the information symmetric across products, the product descriptions in both the Sony Tablet and Apple iPad conditions were the same except the product names and the photo of the product (see Appendix A).

To manipulate type of mental simulation and processing mode, we created a 2 (simulation type: process vs. outcome) \times 2 (processing mode: cognitive vs. affective) headline for the advertisements: for the process/cognitive conditions, "Imagine how you would incorporate this product in your daily routine ..."; for the process/affective conditions, "Imagine how you would feel while incorporating this product in your daily routine..."; for the outcome/cognitive conditions, "Imagine how you would benefit from using this product in your daily routine..."; and for the outcome/affective conditions, "Imagine how you would feel about the benefit from using this product in your daily routine...."

As described previously, participants saw a product picture and product descriptions below the headline. Below the product description, participants found another paragraph that represented a more detailed version of the headline as a further manipulation of simulation instructions (for a sample advertisement, see Appendix C, and for the full version of the simulation instructions, see Appendix D). Note that these headlines and simulation instructions also reflect the common approach of manipulating process versus outcome simulation in the literature (Escalas and Luce 2003, 2004; Zhao, Hoeffler, and Zauberan 2007). At the end of the advertisement, participants read a line that stated, "Visit www.apple.com [www.sony.com] or our local stores for more details."

Measures. We used the same four-item product evaluation measures ($\alpha = .90$) and the same two-item purchase intention measures ($\alpha = .91$) used in Experiment 1 to capture the evaluation of the product. As a manipulation check for the product type, participants indicated the extent to which they thought the Sony Tablet [Apple iPad] was a functional versus affect-rich product (1 = "more functional," and 9 = "more affect-rich"). Furthermore, because we were

interested in what time frame people were thinking of when they evaluated the product in a default case (i.e., without receiving any time instructions), we also asked participants the extent to which they were thinking about using the product for the near future versus distant future while evaluating the product (1 = "a lot about near future," and 9 = "a lot about distant future").

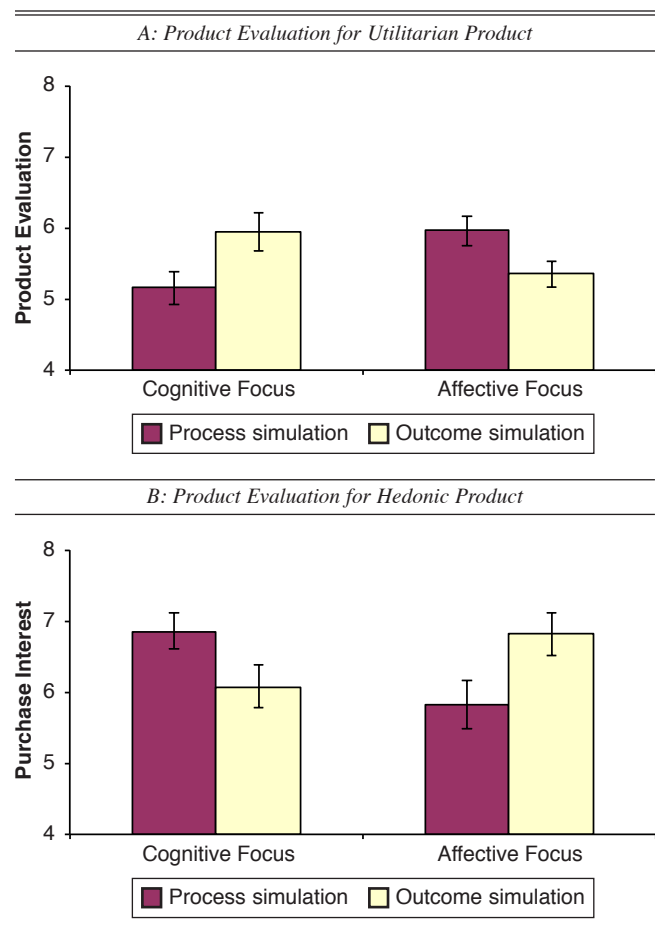
Results

Manipulation check of product type. As expected, we observed a significant main effect of product type on whether the product was more functional or affect rich ($M_{\text{Tablet}} = 5.11$ vs. $M_{\text{iPad}} = 6.14$; $F(1, 296) = 18.51, p < .001, \omega^2 = .06$). This confirmed that participants perceived the Apple iPad as significantly more affect rich than the Sony Tablet.

Product evaluation. As predicted, we found a significant three-way interaction ($F(1, 297) = 17.50, p < .001, \omega^2 = .06$) on product evaluation, showing that the effect of process and outcome simulation under affective and cognitive processing modes is different for utilitarian versus hedonic products (see Figure 2). We found the following results for each product type:

- **Utilitarian product** (when the usage process consideration is more salient and product benefits are underweighted): The results for the Sony Tablet fully replicated our findings in

Figure 2
EXPERIMENT 2 RESULTS



Experiment 1 and provided further support for H_1 . As predicted, we observed a significant two-way interaction between simulation type and processing mode ($F(1, 156) = 8.80, p < .005, \omega^2 = .05$). Specifically, under a cognitive processing mode, outcome simulation increased product evaluations significantly more than process simulation ($M_s = 5.94$ vs. 5.16 ; $F(1, 80) = 4.54, p < .05$). However, under an affective mode, process simulation was more effective than outcome simulation ($M_s = 5.96$ vs. 5.35 ; $F(1, 76) = 4.51, p < .05$).

•*Hedonic product* (when the product benefits are more salient and usage process is underweighted): For the Apple iPad, which naturally evokes considerations of the experiential benefit, the effect of mental simulation reversed. Again, we observed a significant two-way interaction between simulation type and processing mode ($F(1, 141) = 8.65, p < .005, \omega^2 = .06$). However, the pattern of the simple effects was opposite to what we observed for the Sony Tablet. Under a cognitive processing mode, process simulation that enhanced the naturally ignored usage process, increased product evaluations significantly more than outcome simulation ($M_s = 6.86$ vs. 6.08 ; $F(1, 70) = 4.02, p < .05$). However, under an affective mode, outcome simulation was more effective than process simulation in increasing product evaluation ($M_s = 6.82$ vs. 5.83 ; $F(1, 71) = 4.68, p < .05$), arguably because affective immersion was facilitated by the salient benefit consideration. These results provide support for H_2 .²

Discussion

Experiment 2 manipulates focus on the usage process versus the product benefits by introducing two different types of products and examines their unique effect in process and outcome simulations. The results show that when the usage process information was more salient (i.e., for a utilitarian product similar to the product used in Experiment 1), we replicated our prior findings. However, when the product was hedonic, such that the primary focus was on the product benefit (i.e., enjoyment provided by the product) rather than on the usage process, the effect of mental simulation was reversed. Specifically, we found that process simulation led to more favorable product evaluations under a cognitive mode, whereas outcome simulation led to more favorable evaluation under an affective mode.

These results also test the robustness of the effect predicted in H_1 by using a different functional product stimuli and a different way of eliciting mental simulation (i.e., by embedding the instructions in the advertisement directly). More important, these findings establish the moderating role of product type on the interactive effect of simulation type and processing mode hypothesized in H_2 . Reversing the effect of mental simulation under different processing modes by shifting the focus from learning costs to product benefits further confirms the important role of consumers' natural product focus in process versus outcome simulations.

We extend this logic in Experiment 3, in which we test the moderating role of the timing of the evaluation hypothesized in H_3 . To better understand the temporal perspective that participants use in their evaluations, we asked in Experiment 2 whether participants were thinking about the

near or distant future and found that participants were largely thinking about the near future when they evaluated products without an explicit time frame ($M = 3.57$; $t(304) = -11.03, p < .001$, against 5 as the midpoint of the scale [$1 =$ "a lot about near future," and $9 =$ "a lot about distant future"]). Furthermore, we conducted a follow-up study in which we asked people to evaluate the Audio PC that we used in Experiment 1 and asked them whether they were thinking about the near or distant future while evaluating the product on the same nine-point scale. The results showed that participants were also thinking much more about the near future when they evaluated this product without explicit time instructions ($M = 3.43$; $t(20) = -3.49, p < .005$, against 5 as the midpoint of the scale). On the basis of this evidence, in Experiment 3, we explicitly manipulate the temporal perspective of the evaluation.

EXPERIMENT 3

In Experiment 2, we altered consumers' natural focus by using different types of products. In Experiment 3, we manipulate their natural product focus by introducing different temporal distance frames for the evaluation of the same product. Participants were asked to evaluate a product either in a near-future scenario (which should evoke more usage process considerations) or in a distant-future scenario (which should evoke more benefit-related considerations; Liberman and Trope 1998; Trope and Liberman 2003). Note that we used a utilitarian product as our stimuli so that we could replicate the results of Experiment 1 in the near-future conditions.

Method

One hundred eighty-four students at a major North American university completed the experiment to fulfill research participation credit as part of an introductory marketing course. The experiment was a 2 (time: near future vs. distant future) $\times 2$ (simulation type: process vs. outcome) $\times 2$ (processing mode: cognitive vs. affective) between-subjects design.

Procedure. Participants were randomly assigned to one of eight conditions. Except for the addition of the temporal perspective manipulation, the procedure was similar to Experiment 1. Participants were asked to assume that they were going to videotape an important event either in two days (near future) or in two months (distant future) and were looking for a video-editing software package. Prior research has validated this approach of using two days versus two months to manipulate near future versus distant future (Zhao, Hoefler, and Zauberan 2007), and our manipulation check confirmed it as well. Before they viewed the advertisement for a new video-editing software package called MoviePlus X3, they received specific mental simulation instructions that were either process or outcome oriented with an affective or a cognitive focus. Similar to Experiment 1, they then performed mental simulation while writing down their mental imagery at their own pace and answered the questions. Appendix E presents complete instructions for the mental simulations.

Product stimuli. Participants in all conditions were given a mock advertisement that included a picture of a new movie-editing software package called MoviePlus X3. The product information sheets had four components: the head-

²The result pattern for purchase intention completely replicated the pattern of product evaluation, and we do not report it in full. Similar to product evaluation, purchase interest showed a significant three-way interaction ($F(1, 297) = 11.18, p = .001, \omega^2 = .04$). Separate two-way interactions for utilitarian and hedonic products and planned contrasts all mirror the results for product evaluation.

line, the picture, a short description underneath the picture, and a set of product features. The headline stated, “The MoviePlus X3 is the video editing software of choice!” The short description underneath the picture paralleled the headlines: “The MoviePlus X3 gives users outstanding performance in a smart design.” After the short description, the product included a list of six features (see Appendix A). A pretest based on the MoviePlus X3 and the Apple iPad as control confirming that the MoviePlus X3 was perceived as significantly more utilitarian than affective products such as an iPad ($M_{\text{MoviePlus X3}} = 4.82$ vs. $M_{\text{iPad}} = 6.41$ on a nine-point scale [1 = “more functional,” and 9 = “more affect rich”]; $F(1, 59) = 13.68, p < .001, \omega^2 = .19$).

Measures. The same four-item product evaluation measures as in Experiments 1 and 2 were used to capture product evaluation ($\alpha = .90$). To measure participants’ time perception, we also asked them whether they believed the time gap between now and their event to be short or long on a nine-point scale.

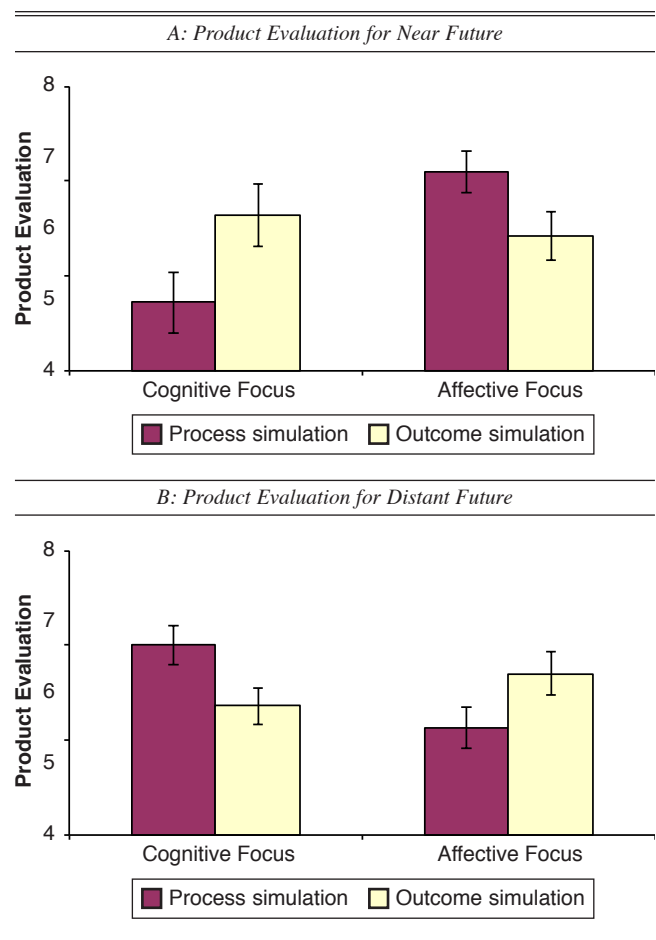
Results

An overall ANOVA showed a significant main effect of time on participants’ time perception, confirming that participants perceived the time gap in the distant-future conditions (two-month) to be much longer than the gap in the near-future condition (two-day) ($M_s = 4.80$ vs. 3.46 ; $F(1, 176) = 19.92, p < .001$). Regarding the product evaluation, as predicted, we found a significant three-way interaction ($F(1, 174) = 16.03, p < .001, \omega^2 = .05$) on product evaluation, showing that the effect of process and outcome simulation under affective and cognitive modes is different for the near versus distant future (see Figure 3). next, we present results for the near and distant future separately.

- Near future* (when the usage process consideration is more salient and benefit consideration is less salient): Recall from the discussion in Experiment 2 that we found that the default time frame was the near future when evaluating a product (i.e., without explicit time instructions). Consistent with these findings, the results for the near future in Experiment 3 completely replicated our findings in Experiment 1 using the AudioPC and the findings in Experiment 2 using the Sony Tablet, in which no explicit time frame was given. We again replicated the same significant two-way interaction between simulation type and processing mode ($F(1, 84) = 7.87, p < .01, \omega^2 = .06$). Specifically, under a cognitive mode, outcome simulation increased favorable product evaluations significantly more than process simulation ($M_s = 6.64$ vs. 5.72 ; $F(1, 40) = 3.95, p < .05$). However, under an affective mode, process simulation was more effective than outcome simulation ($M_s = 7.10$ vs. 6.42 ; $F(1, 44) = 3.90, p < .05$), providing further support for H_1 .

- Distant future* (when the consideration of product benefits is more salient and usage process is less salient): For the distant-future conditions, when the natural focus shifted toward product benefits, the effect of mental simulation reversed. Again, we observed a significant two-way interaction between simulation type and processing mode ($F(1, 90) = 8.30, p < .005, \omega^2 = .03$), but with a reversed pattern: Under a cognitive processing mode, process simulation increased favorable product evaluations significantly more than outcome simulation ($M_s = 7.00$ vs. 6.36 ; $F(1, 48) = 5.12, p < .05$). However, under an affective mode, outcome simulation was marginally more effective than process simulation in increasing product evaluation ($M_s = 6.70$ vs. 6.13 ; $F(1, 42) = 3.35, p = .06$). These results provide support for H_3 .

Figure 3
EXPERIMENT 3 RESULTS



Discussion

Experiment 3 manipulates the natural focus on the product usage process versus product benefits by introducing different time frames in a manner consistent with construal-level theory (e.g., Trope and Liberman 2003). As we predicted, the results show that when the usage process was more salient (i.e., in the near-future conditions, which were similar to the default evaluation mode in Experiments 1 and 2), we replicated our prior findings (using utilitarian products) and found a more positive role of outcome simulation under a cognitive processing mode and a more positive role of process simulation under an affective processing mode. The replication is important because it validates prior research on how products are naturally considered in the near future, and it replicates the results in a yet another product category, increasing our confidence in the generalizability of our basic results. However, in the distant future (when the product benefits became more salient), the effect of mental simulation was reversed. Specifically, we found that process simulation, which highlighted the naturally ignored usage process, led to more favorable product evaluation under a cognitive mode, and outcome simulation, which facilitated affective immersion due to the naturally salient benefit considerations, led to more favorable evaluation under an affective one. This pattern of results replicates the findings in Experiment 2 using the hedonic

product (for which people's primary focus is also on product benefits) and confirmed the moderating role of decision timing hypothesized in H₃.

GENERAL DISCUSSION

In this research, we studied the effect of process and outcome simulation under cognitive versus affective information-processing modes on product evaluation. We hypothesize and demonstrate in three experiments the unique effectiveness in increasing favorable evaluations of each specific type of simulation in different scenarios, depending on whether the learning cost or the product benefits were salient. We specifically designed our experiments to examine the unique effect of process and outcome simulation on product evaluation by isolating the cognitive versus affective mode in each type of simulation.

Taken together, our findings across three experiments and multiple products provide direct convergent evidence in support of the basic prediction that under a cognitive-focused mode, simulating the naturally ignored product aspect leads to more favorable product evaluation (Zhao, Hoeffler, and Zauberman 2007), and under an affective-focused mode, simulating the naturally salient product aspect leads to more favorable product evaluation (Debevec and Romeo 1992). Specifically, when the natural product focus is on the usage process, such that product benefits are less salient, outcome simulation under a cognitive mode or process simulation under an affective mode enhances product evaluation. However, when we switch the natural focus from the usage process toward product benefits—whether because the product is experiential or because the same utilitarian product is evaluated in a distant future frame—the unique effect of mental simulation reverses, such that process simulation under a cognitive mode or outcome simulation under an affective one, leads to more favorable product evaluation.

Across Experiments 2 and 3, we first replicate and then reverse the results when participants evaluate a hedonic product or when they evaluate a product with a distant future time frame. Our argument for this reversal is that in both cases, participants' natural focus had shifted from the usage process to product benefits. Initially, this replication might seem counterintuitive given the view offered by construal-level theory (Trope and Liberman 2003)—namely, that affect is associated with low-level information processing and thus should enhance considerations of low-level product information such as the usage process. However, a more careful read of this work reveals that these seemingly conflicting results are actually consistent with the theory. Specifically, construal-level theory states that when cognitive value is associated with high-level construals and affective value with low-level construals, temporal distance will increase the weight of cognitive value relative to that of affective value. However, when affective value is associated with high-level construals and cognitive value with low-level construals, temporal distance should increase the weight of affective value relative to that of cognitive value. (Trope and Liberman 2003, p. 408). Because the affective value of hedonic products represents high-level construal, the affect related to hedonic products should not evoke low-level thinking, but rather high-level thinking, which is consistent with the distant-future considerations. Our results

provide a direct test and support of this often-ignored dimension of construal-level theory.

Contributions and Further Research

Our work adds to recent research on mental simulation and product evaluation. The majority of the studies in the mental simulation literature (Escalas and Luce 2003, 2004; Taylor et al. 1998) have consistently shown that process simulation is more successful than outcome simulation in increasing performance (Taylor et al. 1998) and behavioral intentions (Escalas and Luce 2003, 2004). We argue that these findings should be generalized with caution when applied to products for which consumers do not yet have well-formed preferences.

We find that counter to the classic findings in the mental simulation literature, process simulation is not always more effective than outcome simulation (toward the goal of increasing favorable product evaluations). In the current research, we address a possible confound between process/outcome simulation and the cognitive/affective focus in the traditional mental simulation literature and find that prior research either confounded process simulation with a cognitive focus and outcome simulation with an affective components (Taylor et al. 1998) or placed an equivalent emphasis on both the cognitive and affective focus within each type of simulation (Escalas and Luce 2003, 2004). Unlike prior research, we isolated different information-processing modes and demonstrated the unique effect of process versus outcome simulation under each mode on product evaluation. Moreover, we identified two important moderators (that switch the natural focus of the product) for this pattern of results: product type (utilitarian vs. hedonic products) and temporal perspective (near vs. distant future).

Our results support our basic theory about the nuanced process in which mental simulation affects product evaluations and, at the same time, provide new findings about the evaluations of hedonic and utilitarian products and the temporal dynamics of product evaluations as well as the parallels between them (in terms of shifting the focus on product features). Note that for product type, we compared the Sony Tablet and Apple iPad. Although our measures showed that the Apple iPad is more experiential than the Sony Tablet, one might wonder what would happen with even more experiential products (e.g., vacations). According to our theory, we conjecture that for such extremely experiential cases, the degree of the findings should be even stronger. Similarly, for time, we compared two days versus two months, and we conjecture that the effect of the distant future would be even stronger if the temporal distance between the near and distant future was larger. Estimating the relative effect of mental simulation for products that vary according to how experiential they are or the impact of different temporal distances are significant issues for further investigation.

Another interesting area for further research is how other aspects of mental simulation or visualization affect preferences. For example, recent work on a related topic that studies the effect of process and outcome simulation over time (Castano et al. 2008) has demonstrated that for near-future evaluations, process simulation led to more positive product attitudes, whereas for distant-future evaluation, outcome simulation led to more positive product attitudes. These

findings are consistent with our findings in an affective mode and opposite our findings in a cognitive mode. However, one of the key differences between the mental simulation in Castano et al. (2008) and our framework is that their manipulation of mental simulation was more solution oriented (i.e., the simulation instructions included aids, guidance, and examples about how and why to use the product). Therefore, a fruitful research question is how the effect of direction-oriented and solution-oriented visualization differs for product evaluation.

An additional area that may be of interest is the examination of the effect of mental simulation and processing modes on hedonic products under a distant-future evaluation mode. In this scenario, both factors (i.e., hedonic products and the distant future time frame) highlight the natural focus on product benefits over usage process. As such, we believe that the combination of both factors would follow a subadditive rule (Kim, Zhang, and Li 2008) and replicate the effect for either the hedonic product or distant future frame.

Last, because products for which consumers have stable preferences are not always subject to deliberative (re)evaluation, nor are they as sensitive to the evaluation context, we focus on products that consumers have not used before and thus do not have well-formed preferences. However, we did not explicitly compare the effect of mental simulation on products for which consumers are more likely to have well-formed preferences. Although we expect an attenuated effect of mental simulation on these types of products, such that the simulation type will have much weaker impact, further research could test this empirically. Moreover, although we identified two moderators in our paper, other factors, such as product familiarity, might also moderate the effect of mental simulation and processing mode. Further research can fruitfully investigate more situations in which our findings will or will not apply.

Managerial Implications

In the product evaluation literature, numerous studies have investigated ways to enhance consumers' evaluation of products with which they have little prior experience. Those strategies include using analogies (Gregan-Paxton and John 1997), other-related visualization (Dahl and Hoefler 2004), and imagination-focused visualization (Zhao, Hoefler, and Dahl 2009). Our research offers a new mechanism—namely, using process versus outcome simulation under a specific information-processing mode (i.e., affective or cognitive) to increase favorable product evaluation. We propose and find that under a cognitive focus, simulating about the naturally ignored aspects leads to more favorable evaluations. However, under an affective focus, simulating about the naturally more salient product aspects results in enhanced evaluation because of the saliency and vividness of those product aspects being more easily transformed into positive affective responses. We further suggest that when incorporating these findings in the marketing practice, marketers should adjust their strategies according to whether the product serves predominantly a functional purpose or is positioned more on affective dimensions and whether consumers evaluate the product for more immediate purchase or for the more distant future.

Conclusions

This research centers on the role of mental simulation and product evaluation. Our findings provide insight into this important and complex issue by showing the differential effects of process and outcome simulations and the role of affective and cognitive considerations in increasing evaluations. We further identified product type and time as moderators of this interactive effect. Our research provides new insight into important questions about product preference development and the exact nature of different types of mental simulations and their ability to enhance product evaluation.

APPENDIX A: STIMULI

Features of the Stimuli in Experiment 1

- Biometric smart pen recognizes, stores, and converts handwritten text.
- Chip-based audio recorder synchronizes with handwritten notes.
- PDF file enhancer allows for onscreen annotation.
- Wearable computer attachment has eyeglass mounted LCD display.
- Lightweight (weighs about 4.5 pounds).
- 14" TFT screen.
- Intel Pentium M processor at 1.73 GHz.
- Three-year limited warranty.

Product Descriptions of the Stimuli in Experiment 2

A magical and revolutionary product, the Sony Tablet [Apple iPad] offers you the best way to experience web, email, and music with a large Multi-Touch screen. The built in e-book reader offers you the best way to read books, magazines, and newspapers with friendly navigators and adjustable font levels in any orientation. The E Ink® screen technology delivers a paper-like display and fully readable in direct sunlight.

Features of the Stimuli in Experiment 3

- Refocusing on video that is fuzzy or distorted so that the project can be restored.
- Green screen editing allows users to shoot a video with a plain background and then place it into a chosen background.
- Video Stabilizer helps fix shaky video footage.
- Loop Playback allows users to play back movie clips in specific loops for smoother editing.
- The Enhanced Movie Wizard helps create a complete movie in only 3 steps.
- DeBlock and DeSnow Filters allow users to clean up video with digital noise or blocky compression artifacts.

APPENDIX B: MENTAL SIMULATION INSTRUCTIONS IN EXPERIMENT 1

Cognitive-Oriented Process Simulation

While you are looking at the advertising on the following page, we would like you to focus on the specific features of this product and imagine the process of using this product. As you imagine, focus on how you would incorporate this product into your daily routine.

Affective-Oriented Process Simulation

While you are looking at the advertising on the following page, we would like you to focus on the specific emotions that you may feel during the process of using this product.

As you imagine, focus on how you would feel while incorporating this product into your daily routine.

Cognitive-Oriented Outcome Simulation

While you are looking at the advertising on the following page, we would like you to focus on the specific benefits of using this product and imagine the outcome of using this product. As you imagine, focus on the specific benefits that you would receive after using this product.

Affective-Oriented Outcome Simulation

While you are looking at the advertising on the following page, we would like you to focus on the specific emotions that you may feel after receiving the benefits of using this product. As you imagine, focus on how you would feel about the outcome of using this product.

APPENDIX C: SAMPLE AD IN EXPERIMENT 2

Imagine how you would incorporate this product in your daily routine ...



A magical and revolutionary product, the Apple iPad offers you the best way to experience web, email, and music with a large Multi-Touch screen. The built in e-book reader offers you the best way to read books, magazines, and newspapers with friendly navigators and adjustable font levels in any orientation. The E Ink® screen technology delivers a paper-like display and fully readable in direct sunlight.

Take a moment to imagine how you would incorporate this product in your daily routine. Push yourself to imagine the process of using this product and how you would make use of the specific features of this product ...

Visit www.apple.com or our local stores for more details.

APPENDIX D: MENTAL SIMULATION INSTRUCTIONS IN EXPERIMENT 2 (EMBEDDED BELOW THE PRODUCT PICTURE AND PRODUCT DESCRIPTIONS)

Cognitive-Oriented Process Simulation

Take a moment to imagine how you would incorporate this product in your daily routine. Push yourself to imagine

the process of using this product and how you would make use of the specific features of this product.

Affective-Oriented Process Simulation

Take a moment to imagine how you would feel while incorporating this product in your daily routine. Push yourself to imagine your feelings during the process of using this product and how you would feel while making use of the specific features of this product.

Cognitive-Oriented Outcome Simulation

Take a moment to imagine how you would benefit from using this product in your daily routine. Push yourself to imagine the benefit of using this product and what you would gain as a result of using this product.

Affective-Oriented Outcome Simulation

Take a moment to imagine how you would feel about the benefit from using this product in your daily routine. Push yourself to imagine your feelings about the benefit of using this product what how you would feel as a result of using this product.

APPENDIX E: MENTAL SIMULATION INSTRUCTIONS IN EXPERIMENT 3

Cognitive-Oriented Process Simulation

While you are looking at the advertising on the following page, we would like you to focus on the specific features of this product and imagine the step-by-step process of using this product in two days [months]. As you imagine, focus on how you would incorporate the specific features of this software to create your video in two days [months].

Affective-Oriented Process Simulation

While you are looking at the advertising on the following page, we would like you to focus on the specific emotions that you may feel during the step-by-step process of using this product in two days [months]. As you imagine, focus on how you would feel while incorporating the specific features of this software to create your video in two days [months].

Cognitive-Oriented Outcome Simulation

While you are looking at the advertising on the following page, we would like you to focus on the specific outcome of using this software and imagine the final quality of the video created with this software in two days [months]. As you imagine, focus on the specific benefits that you would receive after using this software in two days [months].

Affective-Oriented Outcome Simulation

While you are looking at the advertising on the following page, we would like you to focus on the specific emotions that you may feel after receiving the outcome of using this software in two days [months]. As you imagine, focus on how you would feel about the final quality of the video created with this software in two days [months].

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