

Rajesh Bhargave, [Amitav Chakravarti](#) and Abhijit Guha Two-stage decisions increase preference for hedonic options

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TITLE

Two-Stage Decisions Increase Preference for Hedonic Options

ABSTRACT

When choosing from multiple options, decision-makers may directly choose an option (single-stage decision), or initially shortlist a subset of options, and then choose an option from this shortlist (two-stage decision). Past work suggests that these two decision formats should lead to the same final choice when information about the choice alternatives is held constant. In contrast, this research demonstrates a novel effect: two-stage decisions increase preference for hedonic (vs. utilitarian) options. A regulatory focus account explains this effect. In a two-stage process, after shortlisting, decision-makers feel that they have sufficiently advanced their prevention goals, and this reduces their prevention focus during the final choice stage. Reduced prevention focus, in turn, enhances hedonic preference. Four studies across different decision contexts illustrate this effect and support the underlying process mechanism. The findings suggest that the formal structure of a decision (single-stage vs. two-stage) leads to systematic differences in decision-makers' choices.

KEYWORDS

Two-stage decisions, Hedonic choices, Utilitarian choices, Regulatory focus

Decision-makers make choices using either a single-stage or a two-stage decision process. In single-stage decisions, an option is chosen directly from all the available options. In two-stage decisions, however, decision-makers first (i) shortlist (or screen) a subset of options from all the available options, and then (ii) make the final choice from this shortlist (Beach, 1993; Potter & Beach, 1994). For example, a manager deciding on a candidate to hire could evaluate all applicants' resumes and choose one candidate (single-stage decision), or she could first shortlist some candidates, and then choose one from this shortlist (two-stage decision). These decision procedures are formally equivalent; they expose decision-makers to the same options and the same information, and so should lead to similar choice outcomes. However, in direct contrast to this assumption of procedure invariance (Slovic, 1995), we find that two-stage (vs. single-stage) decisions systematically increase preference for choice options that are relatively superior on hedonic decision criteria. Further, we illustrate a novel process mechanism for this phenomenon that relates to decision-makers' goals.

Past work on single-stage decisions versus two-stage decisions has focused on how decision-makers utilize information presented at different stages. According to this past work, in the final stage of two-stage decisions, decision-makers de-emphasize information that they used in the first stage and place greater importance on information that they encountered in the second stage (Chakravarti, Janiszewski, & Ülkümen, 2006; Ge, Häubl, & Elrod, 2012). The research presented in this manuscript differs from this previous research in two ways. First, distinct from past work, we primarily investigate decisions in which all relevant information is provided up front in *both* single-stage and two-stage decisions. In our work, these formats differ mainly in whether the decision is formally demarcated into two stages (i.e., shortlist, then choose-from-

shortlist), or not. No additional information is provided in the second stage. Therefore, we focus on how decisions are influenced by the demarcation itself, holding constant the decision inputs.

Second, we study an important choice outcome that has not yet been examined in the literature on two-stage decisions: preference for hedonic versus utilitarian choice options. When choosing an option, decision-makers often tradeoff hedonic and utilitarian decision criteria. Utilitarian criteria relate to functional aspects, whereas hedonic criteria relate to experiential and discretionary aspects (Khan, Dhar, & Wertenbroch, 2005). For example, in the case of job applicants, work experience is more of a utilitarian characteristic, whereas humor in business-related social situations is more of a hedonic characteristic.

We find that two-stage decisions increase preference for hedonically superior choice options. Unlike past results in the two-stage decision literature that were based on information processing factors, the mechanism that drives our effect is related to decision-makers' goals—specifically, differences in their regulatory focus (Higgins, 1997). We find that shortlisting influences the extent to which the final choice is pursued with a prevention goal (i.e., goal of avoiding disfavored choice outcomes). In a two-stage process, after the shortlisting stage, decision-makers feel that they have sufficiently advanced their prevention goals, which in turn dampens the continued activation of prevention focus; however, promotion focus (i.e., goal of approaching favored outcomes) does not dissipate. Consequently, this relatively lower prevention focus increases preference for hedonic options during the final choice.

Our work has important theoretical and practical implications. With regard to theory, we contribute to the literature on two-stage decision-making, by identifying non-intuitive consequences of structuring the choice process as either single-stage or two-stage. Both, our key effect about hedonic-utilitarian choices and the underlying goal-related process mechanism, are

new to the two-stage decision-making literature. The main insight of our work is the finding that a relatively minor procedural difference in the decision process (i.e., whether decisions are formally demarcated into two stages or not) leads to systematic effects on decision-makers' choices, despite holding key decision-inputs constant. This finding builds upon prior work on how differences in elicitation procedures influence preferences and valuations (Joyce & Shapiro, 1995; Selart, 1996; Slovic, 1995), by showing how the structure of a decision-process influences hedonic preferences.

With regard to practice, this phenomenon is important for a wide variety of decisions that may be demarcated into two stages. Many organizations have a policy of making important decisions (e.g., choice of employees, vendors, clients, projects, etc.) in a way that draws attention to the demarcated structure of the decision (e.g., shortlist, then choose). Also, many academic departments hire new faculty using a two-stage process. Hiring and selection committees might find our results relevant and accordingly, take steps to ensure that these two-stage decisions are not overly hedonic-slanted. Further, the issue of two-stage (vs. single stage) decisions may be particularly relevant to online websites where managers and consumers are prompted to create shortlists (e.g., Google Shopping's "My Shortlist" tool, all-paris-apartments.com's "shortlist" tool, or Human Resources websites with "candidate shortlist" tools). Finally, in personal selling contexts, salespeople can suitably structure the sales process as a two-stage process, contingent on whether they wish to push hedonic options.

Literature Review

The Decision Scenario

We examine decision scenarios in which each choice-option comprises a bundle of characteristics that are utilitarian or hedonic in nature. To test for differences in hedonic preferences, we examine choice sets that have an inherent hedonic-utilitarian tradeoff. More specifically, decision-makers choose between options that are relatively superior on hedonic criteria, but inferior on utilitarian criteria (e.g., affable candidate with modest expertise) versus options that are relatively superior on utilitarian criteria, but inferior on hedonic criteria (e.g., boring candidate with excellent work credentials). In the context of such tradeoffs, higher hedonic preference is reflected by greater choice share of options that are relatively superior on hedonic criteria, compared to other alternatives in the same choice set. This operationalization of hedonic preference is consistent with past work on hedonic-utilitarian tradeoffs (Chernev, 2004; Kivetz & Simonson, 2006; Vohs et al., 2008). As noted earlier, we predict that two-stage (vs. single-stage) decisions lead to an increase in choice share of the relatively more hedonic options.

In this paper, we examine two types of decision-scenarios. In most studies, in both single-stage and two-stage decisions, we present all information upfront; the only difference is in the structure of the decision-process. In two studies, in the single-stage decision we present all information upfront, whereas in the two-stage condition we present the critical information upfront, and only some minor information after the shortlisting stage. We predict that increased hedonic preference after shortlisting generalizes to both these cases. Further, we do not presume that shortlisting must occur in a particular manner (e.g., selection vs. rejection; Levin, Jasper, & Forbes, 1998; Chakravarti et al., 2006), or that shortlisting must be based on particular attributes (e.g., based on price; Larson & Hamilton, 2012).

In our examinations, we acknowledge that it is possible that decision-makers in a single-stage condition might disregard our experimental instructions and informally compose a shortlist, even in a single-stage decision. However, the key point is that two-stage decisions formally mandate a shortlist. We highlight this difference in the explicitness and prominence of shortlisting as a key feature that distinguishes single-stage and two-stage decisions. In the decisions that we examine, only a two-stage format includes an explicit and formal shortlisting stage, whereas in a single-stage format the shortlisting stage may (at best) be implicit and hence less salient during the decision. Therefore, the difference in decision format is relatively subtle, based on the clarity with which the shortlisting stage is demarcated. We focus on this subtle difference, and we examine its effect on differences in decision makers' goals—particularly their regulatory focus—and their subsequent effect on hedonic preference.

Next, we review some key findings from past research on regulatory focus, first highlighting how differences in regulatory focus lead to differences in hedonic versus utilitarian preferences, and then describing how differences in the decision structure (i.e., two-stage vs. one-stage decisions) might lead to differences in regulatory focus.

Regulatory Focus

People pursue goals with two regulatory orientations (Higgins, 1997). *Prevention-focus* emphasizes losses (vs. non-losses) and the minimal goal of avoiding disfavored outcomes. *Promotion-focus* emphasizes gains (vs. non-gains) and the maximal goal of approaching most favored outcomes. Decision-makers' operant regulatory focus determines how they value hedonic characteristics, relating to pleasure and indulgence, versus utilitarian characteristics, relating to functional concerns. Specifically, decision-makers have higher hedonic preference under lesser prevention (greater promotion) focus. This follows from research on goal-attribute

compatibility, which has shown that when decision-makers' minimal goals are reduced, this increases the importance they place on pleasurable characteristics (Chernev, 2004; Higgins, 2002; Safer, 1998). We elaborate on this point later.

Research has shown that prevention focus can influence decisions independent of promotion focus (Higgins, 2002). Therefore, much work on regulatory focus has operationalized promotion and prevention as orthogonal constructs (Haws, Dholakia, & Bearden, 2010; Lockwood, Jordan, & Kunda, 2002). These researchers used separate scales to measure prevention and promotion focus, and we follow the lead of such research. Next, we discuss changes in regulatory focus during single-stage versus two-stage decisions.

When entering into any choice, a decision-maker's baseline regulatory focus depends on her trait characteristics (e.g., chronic regulatory focus) and ancillary situational factors, such as the choice domain under consideration (Sengupta & Zhou, 2007; Zhou & Pham, 2004). We assume that these initial, *exogenous* factors are held constant across single-stage and two-stage decisions, because these factors operate before either decision-path is pursued. However, we argue that, once pursued, a two-stage decision process *endogenously* impacts regulatory focus, independent of any influence of the exogenous factors described above. Specifically, we propose that which option is ultimately chosen depends on the decision-maker's prevailing levels of regulatory focus at the time of the final decision, and that these levels of regulatory focus are likely to be different in single-stage versus two-stage decisions. Next, we explain why this difference emerges.

Regulatory focus in single-stage decisions. We investigate choice sets in which, initially, some options are favored and others are disfavored (i.e., a decision-maker might not like all options equally). Further, over the course of the choice-process, decision-makers could have

promotion objectives, prevention objectives, or hold both objectives concurrently at varying levels (Higgins, 1997). For instance, decision-makers may wish to avoid choosing disfavored alternatives (a prevention objective), or they may wish to choose their favored alternative (a promotion objective). In single-stage-decisions, the final choice is influenced by the levels of regulatory focus that prevail immediately after all options have been encountered, since decision-makers proceed from learning about the options, to directly choosing an option. We are agnostic about this baseline—that is, the relative choice share of the hedonic (vs. utilitarian) options—in the single-stage condition. However, our key prediction is that the choice share of the hedonic options will increase, relative to this baseline, when decisions are structured as two-stage decisions. We explain this prediction next.

Regulatory focus in two-stage decisions. Similar to decision-makers going through a single-stage decision process, a decision-maker going through a two-stage decision process also initially encounters some favored options and some disfavored options. Two-stage decisions include all the initial steps of a single-stage decision. However, as a key point of difference, a decision-maker going through a two-stage process takes an added step, after learning about all the options but before the final choice. More specifically, she first shortlists her preferred options; we predict that after such shortlisting, her relative levels of promotion versus prevention focus shift, leading to relatively reduced prevention focus but unchanged levels of promotion focus. We derive this prediction based on three complementary sets of arguments.

First, by the very nature of two-stage decision making, a shortlist will differ from the initial set of alternatives examined, in that the shortlist has fewer disfavored options or those that are below a minimum standard (Beach, 1993; Levin et al., 1998). Prevention focus is principally concerned with the absence or presence of negative outcomes (Crowe & Higgins, 1997).

Therefore, we contend that when a decision-maker composes a shortlist, this assuages her prevention concerns by drawing attention to the fact that there has been a reduction in the presence of relatively disfavored choice options.

Second, advancing prevention objectives—even partially—leads to subsequent deactivation of vigilance concerns (Förster, Grant, Idson, & Higgins, 2001; Van-Dijk & Kluger, 2004). This result has been shown in studies involving sequential, independent decisions, such as solving multiple anagrams (Förster et al., 2001). We build on this finding and suggest that similar effects can emerge even within the context of a single decision that is clearly demarcated into two stages. We contend that since prevention objectives have been advanced during shortlisting, this reduces future prevention goal pursuit, because decision-makers feel they have less to lose and can let down their guard (Idson & Higgins, 2000). In other words, after shortlisting, there is a belief that prevention concerns are “check-marked”, by actively excluding disfavored options out of the initial choice set, and thus prevention focus likely dissipates.

Third, we do not posit shortlisting to affect promotion focus levels. Promotion focus is principally concerned with the absence or presence of *favored* outcomes (Crowe & Higgins, 1997). In two-stage decisions, the number of favored choice options should be the same in the initial set of alternatives and in the shortlist, because preferred options will typically survive and make it into the shortlist. Therefore, the overall effect of shortlisting is primarily a shift towards relatively lesser prevention focus after the shortlisting phase.

We illustrate this shift with a stylized example. Imagine that two groups of people are choosing from the same set of options in either a single-stage (Group A) or two-stage (Group B) format. If these groups are randomly drawn from the population, then at the start of the choice process, both prevention and promotion focus should not differ across groups. Both groups reach

a certain level of prevention and promotion focus after examining the initial choice set. For Group A, this is the regulatory orientation that prevails during the final choice. In contrast, Group B takes an added step; they formally shortlist their preferred options before making a final choice. Relative to the critical regulatory orientation at which Group A left off, after shortlisting Group B's prevention focus somewhat dissipates, but their promotion focus sustains. Thus, compared to Group A, Group B (who choose in two stages) has reduced prevention focus but similar promotion focus right before the final choice, and we propose that this relatively reduced prevention focus may lead to differences in final choices between Group A and Group B.

In sum, past work has mostly identified exogenous factors that influence regulatory focus at the start of the choice process (e.g., chronic regulatory focus, product domain, etc.). Here, over and above these exogenous factors, we predict that two-stage decisions endogenously produce differences in regulatory focus right before the final choice. Next, we discuss the implications of this difference for the relative weighting of hedonic and utilitarian criteria in choice of an option.

Hedonic Versus Utilitarian Characteristics

In this research, we distinguish characteristics as hedonic or utilitarian by using existing definitions in the literature (Khan et al., 2005). More specifically, utilitarian characteristics relate to functional aspects, whereas hedonic characteristics relate to multisensory, experiential aspects that are more discretionary. Rather than examine preference for these individual characteristics, we follow the lead of prior literature and examine holistic preferences for options, noting that a preference shift towards options that are relatively superior on hedonic characteristics implies an increased emphasis on hedonic criteria (Kivetz & Simonson, 2006; Vohs et al., 2008).

As mentioned earlier, decision-makers' operant regulatory focus has been shown to influence their relative emphasis on hedonic versus utilitarian characteristics in choice sets that

involve a hedonic-utilitarian tradeoff. Research on goal-attribute compatibility has shown that relative reductions in prevention focus increase weighting of hedonic characteristics in choices (Chernev, 2004). Hedonic characteristics are, by their definition, more discretionary and therefore less essential when pursuing a choice with a minimal goal of avoiding disfavored choice outcomes. However, upon a reduction in prevention focus, the goal of the choice becomes relatively less oriented toward avoiding disfavored alternatives, and this shift correspondingly increases the relative importance of discretionary, hedonic characteristics. This occurs even when holding constant levels of promotion focus; past work has shown that merely reducing prevention focus enhances hedonic preference (Higgins, 2002; Safer, 1998).

Thus, we predict that during two-stage decisions, the shift to relatively lesser prevention focus during the final choice stage should lead to a preference shift towards hedonic options in decisions involving a hedonic-utilitarian tradeoff. Formally, we make two predictions, one for the key effect on choice shares, and one for the underlying process mechanism:

H₁: Choice share of options that are relatively superior on hedonic criteria will be relatively greater in two-stage decisions (vs. single-stage decisions).

H₂: Relatively lesser levels of prevention focus right before the final choice in two-stage (vs. single-stage) decisions, will lead to relatively greater hedonic choice share in two-stage (vs. single-stage) decisions.

To clarify these predictions, we are agnostic about the initial level of prevention focus at the start of the choice process; this depends on individual differences and various exogenous

factors. Likewise, we are agnostic about the exact hedonic choice shares in either single-stage or two-stage decisions; these depend on how the options are calibrated. Thus, our prediction is about the *shift* in relative choice shares of the hedonic option, irrespective of the starting baseline. As we show in our studies, this shift occurs not because the final choice set is smaller (Sela, Berger, and Liu, 2009), but rather because shortlisting makes salient to the decision-maker that prevention concerns have been alleviated by a reduction in disfavored options.

Overview of Empirical Studies

Four studies provide convergent evidence for the hypothesized effects and the underlying process mechanism. Each study involves a hedonic-utilitarian tradeoff, with some choice options being relatively superior on hedonic criteria (and relatively inferior on utilitarian criteria), and some options being relatively superior on utilitarian criteria (and relatively inferior on hedonic criteria). In all cases, hedonic-utilitarian tradeoffs in the stimuli are verified via pretests, to ensure that some options are perceived as more hedonic (and less utilitarian) than other options. We manipulate, between-subjects, single-stage versus two-stage decision formats, and then compare final choice shares of the hedonic option.

To show the generalizability of the hypothesized effect, we test a wide variety of managerial and consumer choice contexts across the studies. Study 1 involves a hiring decision context, and shows evidence for process using moderation analyses. Study 2 involves an apartment choice context, and shows evidence for process using mediation analyses. Studies 3 and 4 involve consumer choice contexts, and show that the key effects in this paper replicate in incentive-compatible choice tasks (i.e., participants actually receive their chosen option) and across large choice sets. To show robustness, we demonstrate our effects across different

participant profiles (e.g., North Americans vs. Europeans; undergraduates vs. more diverse adult participants, etc.).

Study 1: Candidate Hiring

In Study 1, we wanted to test our prediction concerning choice shares (H_1), as well as test our hypothesized process mechanism (H_2). More specifically, we sought to show evidence for process using moderation analyses, and in doing so, we counter various potential alternative explanations for the effect on choice shares. We examined a hiring context, typical of many organizational settings. Participants were asked to choose a candidate from a set of candidates that differed in the extent to which the candidates possessed hedonic and utilitarian characteristics. This domain is appropriate for our investigation, because in some organizations a candidate is chosen from amongst all applicants in a single-stage decision, whereas in other organizations the hiring process is explicitly demarcated into two stages. We predicted that a candidate that was relatively superior on hedonic criteria will receive greater choice share under a two-stage (vs. single-stage) decision process (H_1).

Further, according to our hypothesized mechanism (H_2), the above result occurs because shortlisting produces an endogenous reduction of prevention focus prior to the final choice stage. To test this process account, we used a moderation-of-process design (Spencer, Zanna, & Fong, 2005) in which we manipulated regulatory focus. Because we predict a shift in regulatory focus only after the shortlisting stage of the two-stage decision process, and not in single-stage decisions, we moderate the hypothesized mechanism that occurs only after shortlisting.

We used a four-cell design in Study 1. We contrasted a single-stage decision with three versions of two-stage decisions: (i) control version with no prime, (ii) a version in which we

inserted – after the shortlisting stage - a prime to increase prevention focus, and (iii) a version in which we inserted – after the shortlisting stage - a prime to increase promotion focus. We predict that hedonic choice share will be higher in the two-stage control condition versus the single-stage condition. We also predict that the two-stage control condition will have a higher hedonic choice share than the two-stage, prevention-focus prime condition, because the inserted prevention prime will counteract the endogenous reduction in prevention focus that shortlisting precipitates. Lastly, we do not predict differences in choice share between the two-stage control condition and the two-stage, promotion prime condition. This pattern of results would suggest that our proposed effect is driven specifically by prevention focus, and not by increased attention to goal pursuit or other artifacts of the inserted priming task.

We created a choice set of four candidates (Appendix A) for an Information Technology (IT) position. Hedonic characteristics were qualities that would make it fun for other co-workers to work with the candidate, such as being affable and interesting. Utilitarian characteristics were qualities about the candidates that would make them effective IT workers, such as more experience and expertise. The choice set had two relatively superior options (A and C) and two relatively inferior options (B and D). We anticipated that participants would eventually choose one of the two superior, "target" candidates (A and C), thus reducing the potential variance during the final choice stage. Further, to induce a hedonic-utilitarian tradeoff, candidate A was designed to have greater hedonic characteristics than candidate C. We imposed a specific number of candidates in the initial choice set (four) and the shortlisted set (two), in keeping with past work on shortlisting that also involved similar numbers of options (e.g., Ge et al. 2012, Experiment 1). In all pretests and studies, we counterbalanced descriptions and labels (and by extension, order of options).

Pretest

The pretest examined whether participants viewed candidate A as relatively superior on hedonic criteria and inferior on utilitarian criteria compared to candidate C. Participants ($N = 40$ mTurk workers) read descriptions for each candidate, and then rated each candidate using two five-item scales (both scales, $\alpha > 0.85$, drawn from Spangenberg, Voss, & Crowley, 1997). For the hedonic scale, participants rated how much the candidate possessed “fun,” “exciting,” “delightful,” “thrilling,” and “enjoyable” characteristics. For the utilitarian scale, participants rated how much the candidate possessed “necessary,” “practical,” “functional,” “helpful,” and “effective” characteristics. Participants responded on 7-point scales (1 = “not at all,” 7 = “very much”). The ratings confirmed our intended design, as reflected by differences across candidates on hedonic ratings ($M_A = 6.10$; $M_B = 4.02$; $M_C = 3.06$; $M_D = 2.54$), with candidate A having the highest hedonic rating. Candidates differed on utilitarian ratings as well ($M_A = 5.75$; $M_B = 3.88$; $M_C = 6.51$; $M_D = 3.95$), with candidate C having the highest utilitarian rating. Both sets of comparisons between candidates A and C were significant ($t_s(39) > 2.7$; $p_s < .01$).

To examine whether candidates A and C were perceived as superior to candidates B and D, respectively, participants were also given two pair-wise choices. They chose between (i) A and B (the more hedonic candidates), and then chose between (ii) C and D (the less hedonic candidates), separately. All participants chose candidates A and C, over candidates B and D, respectively.

Procedure

Participants ($N = 160$ mTurk workers) completed a computer-based online survey, in a four-cell (single-stage, two-stage-control, two-stage-prevention, two-stage-promotion) between-subjects design. The structure of the decision process was either two-stage (shortlist-then-

choose) or single-stage (straight-choice). On the first webpage, all participants were told that they needed to hire an IT staff member for their office. On the second webpage, they read information on four candidates, taking as much time as they liked. At this point, they simply reviewed the candidates' profiles and did not make any decisions. As such, all participants had the same "awareness set." On the third webpage, they saw this choice set again, but here instructions diverged, contingent on the structure of the decision process.

Single-stage condition participants picked their chosen candidate by clicking on an option. In contrast, participants deciding in two stages were asked to formally shortlist two candidates that they would consider further. Then, on a later webpage, they saw all four options again, but the non-shortlisted options had inactive radio buttons. We retained the non-shortlisted options on this webpage, to ensure that the number of alternatives visible during final choice was constant across structure of the decision process. Then, two-stage participants made their final choice out of their two shortlisted options.

There were three versions of the two-stage decision process. The control condition is as described above. In other conditions, participants were asked right after the shortlisting stage (and before the final choice stage) to respond to a prompt about a decision they have made in the past. Specifically, they were asked to write about a time they tried to avoid a bad outcome (prevention prime) or about a time they tried to attain a good outcome (promotion prime), prompts used in earlier work (Higgins et al., 2001). In these two conditions, after writing their response to the prompt, participants returned to the candidate hiring scenario and chose their preferred candidate out of the two candidates that they shortlisted.

Results

Consistent with H_1 , choice share of the target hedonic option (A) was higher in the two-stage control condition (60.0%) than in the single-stage condition (34.78%, binomial $z = 2.33$, $p < .05$; $n = 86$; see Figure 1). Further, consistent with our regulatory focus mechanism, hedonic choice share in the two-stage condition with the prevention prime was low (35.0%), significantly lower than that of the two-stage control condition (binomial $z = 2.24$, $p < .05$, $n = 80$), but similar to the single-stage condition (binomial $z < 1$). Finally, unlike in the two-stage condition with the prevention prime, hedonic choice share in the two-stage condition with the promotion prime stayed relatively high (55.88%), and was similar to the hedonic choice share in the two-stage control condition (binomial $z < 1$).¹ Thus, consistent with our predictions, only a prevention prime (but not a promotion prime) turned off the effect of shortlisting.

Note that, as expected, all participants in the two-stage conditions shortlisted the one superior hedonic option (A) and the one superior utilitarian option (C); no participant shortlisted options (B) or (D). Therefore, effectively, during final choice, the range of hedonic and utilitarian attributes was similar between the single-stage and two-stage conditions.

-Insert Figure 1 about here-

Discussion

Study 1 makes three points. First, using a hiring scenario, we provide initial evidence that two-stage (vs. single-stage) decisions enhance preference for hedonic options (H_1). Second, consistent with our proposed process mechanism, we find that inserting a prevention-focus prime after the shortlisting stage turned off the key effect on hedonic choice shares, whereas inserting a promotion-focus prime did not turn off this effect. Thus, reinstating prevention focus reverses the

¹ As an aside, and as expected, hedonic choice share was (directionally) higher in the promotion-prime condition, than either the single-stage condition (binomial $z = 1.89$, $p = .06$, $n = 80$) or the prevention-prime condition (binomial $z = 1.81$, $p = .07$, $n = 74$).

effect of shortlisting, and consequently leads to the same lower hedonic choice share as a single-stage decision. This result is consistent with H_2 , in that reduced prevention focus post-shortlisting accounts for the increased hedonic choice share in two-stage decisions.

Third, these results allow us to address various potential alternative accounts of why decision makers may prefer hedonic options in two-stage decision-making. For instance, decision-makers have been shown to have a greater hedonic preference with smaller choice sets. This is said to occur due to a lesser need for choice justification when decision makers are faced with smaller choice sets (Sela et al., 2009). This account is inconsistent with the pattern of results we observe, as this alternative account would have predicted that the hedonic choice share would be equally high in all two-stage conditions.

Further, decision-makers have also been shown to have greater hedonic preference after exerting greater effort (Kivetz & Simonson, 2006), after feeling depleted (Vohs et al., 2008), or on experiencing cognitive load (Shiv & Fedorikhin, 1999). These accounts would suggest that hedonic choice share would—if anything—be higher in both conditions that involved incremental writing (i.e., after both prevention and promotion primes), because the writing tasks add additional content and activity. However, this was not the case in this study.

These results are also inconsistent with licensing (Khan & Dhar, 2006). The licensing effect occurs when decision-makers view their prior behavior as virtuous, which enhances their self-concept and leads to greater choice of self-indulgent options. For instance, decision-makers deciding in two stages may interpret their inclusion of a utilitarian candidate into the shortlist as virtuous, which licenses them to choose a hedonic candidate. Alternatively, using a looser definition of “licensing”, decision-makers may feel that by shortlisting, they were careful with their decision, and hence virtuous. Yet, for licensing to occur, “expressing only an intention to

commit a virtuous act is sufficient”; the virtuous act need not be carried out (Khan & Dhar, 2006, p. 262). Therefore, Study 1’s prevention prime should not have moderated the licensing effect, because participants were able to express their virtuous behavior (e.g., being careful) in the shortlisting stage, regardless of whether a prevention prime was inserted afterward.

Taken together, the results of Study 1 are inconsistent with various potential alternative accounts that lead to increased hedonic choice share, but are consistent with the regulatory focus account proposed in H₂. However, Study 1 is silent about whether two-stage decision-making only reduces prevention focus prior to the final choice stage, or whether it increases promotion focus as well. We address this issue in Study 2, by measuring promotion focus and prevention focus separately.

Study 2: Apartment Choice

Study 2 tests our proposed effect of two-stage decision-making in an apartment choice task. This domain is appropriate for our investigation, because apartment decisions have been studied in the research on two-stage decisions (Ge et al., 2012). Moreover, past research on hedonic-utilitarian tradeoffs has also studied apartment choices (Dhar & Wertenbroch, 2000), and in general, apartment choices are highly involving. Finally, we believe that real-world apartment realtors can encourage a two-stage decision-process, even with small choice sets. For instance, an apartment realtor may present an initial set of options to a client, and then might suggest that this client shortlist a set of options to consider further. Also, this kind of shortlisting is also encouraged by apartment-rental websites.

We created a choice set of four apartments (Appendix B). Hedonic attributes were aesthetics of the apartments’ interior, view, and surrounding neighborhood. Utilitarian attributes

were accessibility to work, stores, and public transportation. The choice set had two hedonic apartments (A and B) and two utilitarian apartments (C and D). Additionally, the choice set had two relatively superior options (A and C) and two relatively inferior options (B and D), of both hedonic and utilitarian types. As in Study 1, we anticipated that participants would eventually choose one of the two superior, "target" options (A and C), thus reducing the potential variance in final choices.

The stimuli were developed through two pretests, similar to Study 1's pretest. We report the pretests' measures and detailed results in Appendix C. As a brief overview, Pretest 1 verified that participants viewed option A as relatively more hedonic and less utilitarian than option C. Pretest 2 verified that options A and C were perceived as superior to options B and D, respectively.

Consistent with our main prediction (H_1), we expected that two-stage (vs. single-stage) decisions will increase choice of the relatively more hedonic option (A) from this apartment choice set. Please note that we group three studies, 2A, 2B, and 2C under the heading 'Study 2.' All these studies involve an apartment choice task, and use the same stimuli (described above). However, each study tests different aspects of our predictions, and shows the robustness of the effect in different ways, as we explain in the introduction of each study.²

Study 2A

The purpose of Study 2A was to replicate our main finding on hedonic choice share, and also to test our proposed process mechanism, but this time using mediation analyses.

Procedure. Participants ($N = 76$ U.K.-based participants, paid £10 each) completed a computer-based survey. We manipulated structure of the decision process between-subjects as

² We thank our anonymous reviewers for motivating Studies 2B and 2C.

either two-stage (shortlist-then-choose) or single-stage (straight-choice). On the first webpage, all participants imagined that they needed to rent an apartment in a large city. On the second webpage, they read information on four apartment options (described above), taking as much time as they liked. At this point, they simply reviewed the options and did not make any decisions. As such, all participants had the same “awareness set.” On the third webpage, they saw this choice set again, but here instructions for the two conditions diverged.

Participants in the single-stage condition picked one apartment by clicking on an option. In contrast, participants in the two-stage condition were asked to shortlist two apartments that they would consider further. Then, on a fourth webpage, two-stage participants saw all four options again, but the non-shortlisted options had inactive radio buttons. We retained the non-shortlisted options on this webpage, to ensure that the number of alternatives visible during final choice was constant across the single-stage and two-stage conditions. Two-stage participants made their final choice out of their two shortlisted options on this fourth webpage.

After the final choice, participants responded to two questions that elicited regulatory focus. They indicated the extent to which they agreed (1 = “Disagree,” 7 = “Agree”) with two statements: (a) “Earlier, when I was making my final choice for an apartment, I was mainly trying to pick a good option.” (promotion focus measure), and (b) “Earlier, when I was making my final choice for an apartment, I was mainly trying to avoid a bad option.” (prevention focus measure). These two questions were displayed on separate screens, with order counter-balanced. Like earlier work, we used single-item regulatory focus scales and assessed these after the key dependent variable (Wan, Hong, & Sternthal, 2009; Zhou & Pham, 2004). In particular, we adapted Zhou & Pham’s (2004) scale, in which participants were asked about the extent to which their monetary decision was driven by a desire to gain money or to avoid losing money.

Results. Consistent with H₁, choice share of the target hedonic option (A) was higher in the two-stage (60.5%) than in the single-stage condition (36.8%, binomial $z = 2.13$, $p < .05$, $n = 76$). Across conditions, during the final choice, no participants selected the decoy hedonic option B, and only two participants selected the decoy utilitarian option D. Results replicated when defining hedonic choice as [A + B] and utilitarian choice as [C + D]. Most participants in the two-stage condition (26 out of 38) shortlisted the one superior hedonic option (A) and the one superior utilitarian option (C). Restricting the analysis to only those two-stage participants who had shortlisted options A and C led to a similar pattern of results.³

As predicted by H₂, prevention focus was significantly lower in the two-stage versus single-stage condition ($M_{\text{Two-Stage}} = 3.26$, $SD = 1.88$ vs. $M_{\text{Single-Stage}} = 5.18$, $SD = 1.99$, $F(1, 74) = 18.59$, $p < .01$). However, promotion focus did not significantly differ between conditions ($M_{\text{Two-Stage}} = 6.29$, $SD = 0.80$ vs. $M_{\text{Single-Stage}} = 6.11$, $SD = 1.18$, $F(1, 74) = 0.63$, $p = .43$). Therefore, relative to the single-stage condition, in the two-stage condition, prevention focus dissipated, while promotion focus remained intact.⁴

Next, we examined whether prevention focus mediated the relationship between structure of the decision process and hedonic choice share. Supporting H₂, this analysis (per procedures in Preacher and Hayes 2008) exhibited complete mediation; please see Figure 2. That is, when prevention focus was the mediator, we found no direct effects of single-stage versus two-stage decision-making (the independent variable) on hedonic choice share (the dependent variable) ($p = .32$). Moreover, the indirect mediation effect (i.e., the effect of the independent variable on the

³ Results replicate when restricting the analysis to single-stage participants and two-stage participants who only shortlisted A + C ($n = 64$). Just considering these participants, hedonic choice share was higher than that of the single-stage condition (73.1% vs. 36.8%, binomial $z = 3.10$, $p < .01$).

⁴ Note that the correlation between the prevention and promotion items was not significant ($r = 0.08$, $p = .47$) Prior work has found that the two scales are either not significantly correlated, or exhibit a modest, positive correlation (Haws et al., 2010; Table 2).

dependent variable via prevention focus) was significant, with the 95% confidence interval not including zero (0.02 to 1.24).

-Insert Figure 2 about here-

Study 2B

The purpose of Study 2B ($N = 89$, U.S. undergraduates) was to test the robustness of Study 2A's mediation findings. Study 2B's design (single-stage vs. two-stage between-subjects), choice set, and procedures were identical to Study 2A. There were only two changes (in comparison to Study 2A), related to the regulatory focus measure.

First, regulatory focus was elicited before final choice (vs. after final choice in Study 2A). This change was introduced to address the potential concern that in Study 2A the mediator (i.e., regulatory focus) could have been unduly influenced by the dependent variable (i.e., choice), and that the observed self-reports of regulatory focus might simply reflect a need for consistency.

Second, the regulatory focus measure was adapted from a different paper in this literature (Wan et al., 2009). Participants indicated the extent to which they agreed (1 = "Disagree," 9 = "Agree") with two statements: "I am looking to avoid negative outcomes" (prevention focus) and "I am looking to achieve positive outcomes" (promotion focus). Besides the aim of using a different regulatory focus measure, this change was also introduced to address a potential concern that the items used to tap on to promotion and prevention concerns in Study 2A might have been too closely tied to the apartment choice task. For example, when participants in the two-stage condition agreed with the prevention focus statement in Study 2A ("I was mainly trying to avoid a bad option"), they might have simply been acknowledging that they did indeed

eliminate some bad options via the shortlisting step. Thus, prevention self-reports in Study 2A might not have been truly reflective of the prevention focus that was being experienced. Rather, they could have simply reflected participants' acknowledgement of a key feature of the task that they had engaged in (i.e., shortlisting). Using Wan et al.'s (2009) more general mindset measure, as well as administering this measure prior to the dependent variable, addresses the above concerns.

Results. Consistent with Study 2A's results and H₁, choice share of the target hedonic option (A) was higher in the two-stage versus single-stage condition (71.1% vs. 31.8%, binomial $z = 4.03, p < .01, n = 89$).⁵ Further, prevention focus was significantly lower in the two-stage than in the single-stage condition ($M_{\text{Two-Stage}} = 5.98, SD = 1.60$ vs. $M_{\text{Single-Stage}} = 7.91, SD = 1.12, F(1, 87) = 43.33, p < .01$), but promotion focus did not significantly differ between conditions ($M_{\text{Two-Stage}} = 8.00, SD = 1.26$ vs. $M_{\text{Single-Stage}} = 7.82, SD = 1.29, F(1, 87) = 0.45, p = .51$)⁶. Finally, supporting H₂, differences in prevention focus fully mediated differences in choice shares, with the 95% confidence interval for the indirect effect not including zero (0.18 to 1.83); please see Figure 3.

-Insert Figure 3 about here-

Study 2C

Study 2C ($N = 253$, U.S. undergraduates) also uses the same stimuli, but with a different objective. We wanted to address an alternative account that hedonic choice share differences are driven by the smaller choice set that participants ultimately view in two-stage decisions (Sela et al., 2009). For instance, one could argue that in the final stage of the apartment studies' two-

⁵ In study 2B, no participant chose the relatively inferior option B, and only three participants chose the relatively inferior option D.

⁶ The prevention and promotion items had a modest, positive correlation ($r = 0.29, p < .01$).

stage decisions, participants only had to view two apartments, whereas in the single-stage condition, they had to view four apartments, and that this difference in choice-set size may explain the greater hedonic choice share in the two-stage condition.

While we do not believe that choice set size differences can account for all our past findings, Study 2C includes additional conditions to specifically address this account. Study 2C used a four-cell between-subjects design. As in studies 2A and 2B, two conditions involve reading about four apartment options and then deciding in either a single-stage or a two-stage format. Further, in another condition (small-set choice), we ask participants to choose only between the two relatively superior options (A and C), in a single-stage format.⁷ These participants were never exposed to the relatively inferior options (B and D), so in the final choice stage they only viewed two apartments, just like in the two-stage condition, but they pick in a single-stage.

In still another single-stage condition (unavailable-set choice), participants read about all four apartments, but they were told that two options are unavailable. These ‘unavailable’ apartments were the relatively inferior apartments (B and D). The task instructions made no association between option unavailability and option inferiority. That is, participants were not told that B and D were unavailable *because* they were relatively poor. Instead, they were simply made unavailable (i.e., with inactive radio buttons) without any further explanation. Therefore, including this condition allows us to test whether the concept of unavailability activated post-shortlisting can account for the higher hedonic choice share in two-stage decision-making.

In Study 2C, we predict higher hedonic choice share in the two-stage condition versus all three single-stage conditions (i.e., control, small-set choice, unavailable-set choice). This is consistent with our account that two-stage decisions increase hedonic choice share, because the

⁷ In this condition, apartment options were re-labeled as A and B.

shortlisting stage draws attention to the fact that relatively inferior choice options have been actively eliminated. This implication is entirely absent when the choice set simply never had inferior options to begin with (small-set choice condition) or when the inferior options were unavailable for other reasons (unavailable-set choice condition). These predictions, if borne out by the results, should further highlight the critical role of the act of shortlisting.

Results. Consistent with Study 2A's results and H₁, choice share of the target hedonic option (A) was higher in the two-stage condition (55.6%) versus single-stage control (26.4%), small-set choice (27.4%) and unavailable-set choice (36.9%) conditions. All contrasts between the two-stage condition and the single-stage conditions were significant (all binomial $z > 2.07$, $p < .05$), but none of the contrasts between the three single-stage conditions was significant (all binomial $z < 1.32$, $p > .19$). Restricting the analysis to only those participants who had either chosen or shortlisted the two dominant options (A and C) revealed a similar pattern of results, as only 18 (out of 253) participants chose or shortlisted inferior apartment options.

Discussion

Studies 2A, 2B, and 2C all replicated our finding that two-stage decisions increase hedonic preference relative to single-stage decisions. Further, studies 2A and 2B found evidence for our proposed regulatory focus mechanism (H₂), this time using mediation analyses. These studies show that only decision-makers' prevention focus (and not their promotion focus) is influenced by a shortlisting stage. Across studies 2A and 2B, we used different regulatory focus scales from the literature (Zhou & Pham, 2004; Wan et al., 2009), and we presented these scales either before (Study 2A) or after (Study 2B) the final choice. The mediation results generalized across these measurement differences, thereby showing the robustness of our proposed

mechanism. Finally, Study 2C helped address competing explanations related to choice set size (Sela et al., 2009) and option unavailability. Next, we test our predictions in an incentive-compatible choice task.

Study 3: Choice of Pen Option

Study 3 further generalizes our results in the domain of pens, which has been studied in past work on two-stage decision-making (Larson & Hamilton, 2012). We group two related studies, Study 3A and 3B, under the heading ‘Study 3’, because both involve a pen choice task and have similar procedures. Yet, each study contributes to our findings in different ways.

Study 3A

Study 3A is an initial test of our proposed effect in an incentive-compatible pen choice task. Participants were asked to choose a pen option, and told that they will actually receive their chosen option at the end of the study. The choice options were (counter-balanced): (A) a set of three Bic brand pens that were plain in decoration, (B) one pen emblazoned with the university’s name and colors, and (C) a used pen of uncertain quality and vintage. We expected that the used pen would be perceived as a dominated pen. We also expected that the university pen would be perceived as more hedonic (and less utilitarian) than the Bic pen set, and this was borne out in our pre-test results (Appendix C). Therefore, we expect higher choice share of the university pen under two-stage (vs. single-stage) decision-making.

Procedure. Undergraduate students ($N = 133$) participated in a 3-cell (single-stage-control, two-stage, small-set choice) between-subjects design. In the single-stage-control and two-stage conditions, participants encountered the three pen options at the start of the task and

eventually chose one option, in a single-stage or two-stage fashion, respectively. In contrast, in the small-set choice condition, Option C (i.e., dominated pen) was never mentioned. This was a straight choice with only two options (pen options A and B), like the small-set choice condition reported in Study 2C.

The study instructions were administered on a computer in a lab. On the first webpage, participants learned that they would choose a pen option to take home. On the second webpage, they read a written description of the available options. On the third webpage, procedures diverged. Single-stage participants raised their hand, at which point a lab proctor came by to show them the pen options that they read about earlier (i.e., three options in the single-stage control and two options in the small-set choice). They were free to look at the pens for as long as they wanted to. The lab proctor then took the pen options back, and then participants indicated their final choice. Two-stage condition participants read about all three pen options, then shortlisted two pen options, then raised their hand to have the proctor present them only the two shortlisted pen options, after which they indicated their final choice. Thus, two-stage participants saw some new information after shortlisting, in this case the actual physical appearance of the pens, but this “new” information was not substantially different from what they had learned in reading about the pen options prior to shortlisting. Moreover, participants in the single-stage conditions had also got to visually inspect the pens, as part of the single-stage condition. Thus the critical difference between the two-stage and single-stage conditions is the presence or absence of a shortlisting phase. At the end of the lab session, participants received their chosen pen option.

Results. As predicted, hedonic choice share (i.e., choice of the university-labeled pen) was greater in the two-stage condition (76.6%) than either the single-stage condition (56.82%) or

the single-stage, small-set condition (54.8%; both comparisons, binomial $z > 2.1$, $p < .05$).

Nobody shortlisted or chose the dominated pen (Option C).

Study 3B

In Study 3B, we sought to replicate these findings in another incentive-compatible pens choice task. This study differed from Study 3A in two ways. First, we designed Study 3B's choice set such that none of the options was dominated. This helps generalize the findings to decisions that do not have a clear dominance structure. More specifically, Study 3B includes the same Options A and B (i.e., Bic pen set and university logo pen), as in Study 3A, but Option C was another (generally acceptable) hedonic option. This pen had a basketball hoop on top and a plastic basketball attached by a string. Our pre-test, reported in Appendix C, confirmed that the Bic pen set was perceived as more utilitarian and less hedonic than the other two options, which were similar to each other on both criteria. Thus, we expected that choice of either hedonic option (i.e., options B or C) would be greater in a two-stage (vs. single-stage) decision.

A second purpose of Study 3B is that we sought to show additional evidence for process in a mediation analysis. Critically, unlike our measures reported in studies 2A and 2B, the regulatory focus measure we use in Study 3B is entirely unrelated to the choice task under consideration. Consistent with past work (Higgins et al., 1994; Zhou & Pham, 2004), we reasoned that a decision-maker's prevailing regulatory focus levels tend to color responses for all kinds of goal-related judgment tasks. Thus, we should be able to detect differences in regulatory focus via a goal-related task that is unrelated to the choice of pens. Such a finding would help to counter any choice justification account for our mediation process evidence.

Procedure. Undergraduate students ($N = 97$) participated in a 2-cell (single-stage vs. two-stage) between-subjects design. Study 3B's procedures were similar to those of Study 3A, with only two differences. First, the choice set was different; as described above, we replaced the dominated pen with a hedonic, generally acceptable basketball pen. Second, after the final choice, participants responded to a prompt that measured regulatory focus in a completely unrelated domain. We used the commonly employed "friendship strategy" measure of regulatory focus (Higgins et al., 1994; Zhou & Pham, 2004). Participants were asked to choose three of six possible strategies for friendship. Of the six strategies presented, three were promotion-oriented (e.g., "be generous and willing to give of myself"), and three were prevention-oriented (e.g., "stay in touch and avoid losing contact with my friends"). Here, the number of prevention-oriented strategies chosen is the mirror of the number of promotion-oriented strategies chosen.

Results. Consistent with H_1 and prior studies, hedonic choice share (i.e., choice of either the university-labeled or basketball pen) was higher in the two-stage (65.3%) versus the single-stage condition (39.6%, binomial $z = 2.53$, $p < .01$). This effect was not driven by the composition of the shortlists. The utilitarian, Bic pen set was shortlisted with the university-labeled pen by 69.4% of participants, and 22.4% of participants shortlisted the Bic option and the basketball pen. Only four participants shortlisted both hedonic options, and the choice share results held when excluding these participants (revised two-stage hedonic choice share = 62.2%; binomial $z = 2.18$, $p < .05$). Thus, shortlists overwhelmingly included one hedonic and one utilitarian option.⁸

⁸ Choice share for the utilitarian Bic pen set was similar between the two common shortlists. The Bic option was chosen by 38.2% of participants that composed a Bic + university logo pen shortlist and by 36.4% of participants that composed a Bic + basketball pen shortlist.

Consistent with H₂, the number of prevention-oriented friendship strategies chosen (out of 3) was greater in the single-stage ($M = 1.69$, $SD = 0.83$) versus the two-stage condition ($M = 1.31$, $SD = 0.90$; $t(95) = -2.17$, $p < .05$). We conducted a mediation analysis, using the number of prevention-oriented friendship strategies chosen as our measure of regulatory focus. When the number of prevention-oriented friendship strategies chosen was the mediator, the direct effect of two-stage decision-making reduced, from $p = .01$ to $p = 0.04$, indicating partial mediation. Moreover, the indirect mediation effect was significant, with the 95% confidence interval not including zero (0.01 to 0.65), see Figure 4.

-Insert Figure 4 about here-

Discussion

Taken together, the results of studies 3A and 3B replicate our previous findings in a different domain, choice of a pen option. Importantly, because both these studies involved consequential choices, these studies also increase our confidence that our predictions would hold in many other settings as well. Study 3A replicated the finding (reported in Study 2B) that a single-stage, small-set choice had lower hedonic choice share than a two-stage decision, which helps to counter the choice set size alternative explanation (Sela et al., 2009). Further, Study 3B found additional evidence for our proposed regulatory focus mechanism, using mediation analyses.

These studies generalize our findings in three ways. First, in both studies, some new minor information was presented after shortlisting (i.e., the pen's actual physical appearance), suggesting that shortlisting can increase hedonic preference in many other choice tasks. Second, Study 3B showed that the result also holds when none of the options in the choice set is

dominated. In this study, none of the options was dominated, and so shortlists were idiosyncratic. Third, Study 3B also involved a more generalized regulatory focus measure. In particular, this measure was multi-item, and unrelated to the choice task under consideration, thus allowing us to counter choice justification accounts of the mediation results. These findings also suggest that two-stage decisions might have interesting “spillover” effects on subsequent, unrelated tasks.

Study 4: Snack Options

In Study 4, we test our predictions in the domain of snacks. Like in Study 3B, the choice set does not include any dominated items. The two key contributions of this study are that (1) unlike our previous studies, Study 4’s initial choice set and shortlists are both larger, and (2) the choice options were written to be even simpler to process.

Procedures

Participants ($N = 70$ U.S. undergraduates) completed an online survey about choosing a mid-afternoon snack. They were shown eight Nature Valley granola bar options (e.g., Strawberry, Oatmeal-Raisin, etc.) and eight Ben & Jerry’s ice cream cup options (e.g., Cherry Garcia, Monkey Ice, etc.). Each option only showed the name of the product, with no description or image. In the single-stage condition, participants picked one item. In the two-stage condition, participants (i) shortlisted four options, and then (ii) from this shortlist, chose an option.

Pretest

A separate set of participants ($N = 35$ U.S. undergraduates) categorized the items as either utilitarian or hedonic. Specifically, they categorized each snack as either (i) “*necessary, practical, functional, helpful, and effective*”, or (ii) “*enjoyable, fun, delightful, exciting, and*

thrilling” (Spangenberg et al., 1997), with the latter categorization reflecting a hedonic classification. Ice cream cups were more likely to be classified as hedonic options ($P_{\text{Hedonic}} = 94\%$ to 100%) than granola bars ($P_{\text{Hedonic}} = 20\%$ to 34%). All pair-wise comparisons between each of the 8 granola bars versus each of the 8 ice cream cups were significant (all binomial $z_s > 5.0$; $p_s < .01$). Therefore, hedonic preference is reflected as a greater choice share of ice cream cups.

Results

Consistent with H_1 , hedonic choice-share (i.e., choice of ice cream cups) was greater in the two-stage (vs. single-stage) condition (71.8% vs. 48.4%, binomial $z = 2.03$, $p < .05$). As in previous studies, composition of the shortlists was not primarily utilitarian; the majority of shortlists had equal numbers of utilitarian and hedonic options. More specifically, the proportion of participants in the two-stage condition who formed each type of consideration sets were as follows: (a) 1 granola bar - 3 ice creams = 35.9%, (b) 2 granola bars - 2 ice creams = 51.3%, and (c) 3 granola bars - 1 ice cream = 12.8%. None of the participants formed a shortlist with only granola bars or only ice-cream cups.

Discussion

Study 4 was distinct from prior studies in various ways. First, it used a relatively large choice set (i.e., 16 items here vs. 4 candidates, 4 apartments and 3 pen options in earlier studies). Further, it showed that the hypothesized effect is not limited to decision scenarios where explicit attribute descriptions make the hedonic-utilitarian tradeoff apparent, as here no attribute descriptions were provided. In contrast, prior work on two-stage decisions has largely concentrated on decision scenarios with explicit attribute descriptions (e.g., Beach, 1993, Chakravarti et al., 2006, Ge et al., 2012). Finally, like Study 3B, it showed that the key effect sustains even when the choice set does not include dominated options. Related to the last point,

note that an Oatmeal-Raisin flavor granola bar is not necessarily a better utilitarian option than a Strawberry flavor granola bar; likewise, the Cherry Garcia flavor ice cream is not necessarily a better hedonic option than Monkey Ice flavor ice cream. As such, participants composed shortlists based on their idiosyncratic preferences, rather than drawing off a clear dominance ordering within the stimuli. This is an important departure from the hiring and apartment choice studies, and increases the generalizability of the documented effect.

General Discussion

Summary of Findings

This research documents a novel effect: two-stage decisions (vs. single-stage decisions), enhance preference for relatively hedonic (vs. utilitarian) options. The effect we outline is robust and replicates across multiple studies that differed in (i) choice domains (employees, apartments, snacks, pens), (ii) type of attribute information (e.g., text description vs. names vs. pictures), (iii) choice set parameters (3 to 16 options; presence vs. absence of dominated options), and (iv) participant populations (e.g., U.S. vs. European participants, students vs. mTurk workers, etc.). We also demonstrated the underlying regulatory focus-based process mechanism using both moderation and mediation analyses.

Theoretical Contributions

This research advances work on two-stage decision-making by showing that the structure of the decision impacts hedonic-utilitarian tradeoffs. In comparison, past work has only shown how two-stage decision-making affects information processing, such as relatively lesser weighting of (i) information presented in the first stage (Chakravarti et al., 2006, Ge et al., 2012), or (ii) attributes that have been used in the first stage (Larson & Hamilton, 2012). Past work has

not, to the best of our knowledge, found any effects that differ by the *type* of attributes (e.g., hedonic vs. utilitarian) considered during decision making. Thus, our work is the first to show that two-stage (vs. single-stage) decisions systematically enhance hedonic preference.

The results of the present work build upon and extend prior findings on the violation of procedure invariance in decision-making (Slovic, 1995). Past research has found that procedural differences, such as the task purpose (e.g., choice vs. matching; Tversky, Sattath, & Slovic, 1988) and the framing of the outcomes (e.g., gains vs. losses; Frisch, 1993; Tversky & Kahneman, 1981), influence preferences. We show that a formal demarcation of a decision, into two stages, can similarly act as a subtle difference in procedure that influences final choices. This effect is important to document and understand, because many decisions are either naturally demarcated into two stages, or can be artificially demarcated as such, to influence preference.

Implications for Managers

Our findings have important managerial implications. First, our findings apply to many organizational and managerial decisions. For example, these results can generalize to workplace situations in which employees have to choose between projects that differ on utilitarian criteria (e.g., payment, work hours, etc.) and hedonic criteria (e.g., enjoyment, office facilities, etc.). Managers can influence such choices by structuring these decisions as either a single-stage or a two-stage decision. As another example, consider the fact that organizational hiring decisions very often occur in two stages (e.g., preliminary CV-based shortlisting, followed by in-person interviews). In these cases, managers are (implicitly) more likely to focus on the job candidates' hedonic characteristics (e.g., affability) in the final choice stage. If this issue is problematic, then managers should implement suitable moderating mechanisms to ensure that the organization gives suitable weight to pertinent utilitarian characteristics of the shortlisted candidates.

Second, the finding that two-stage decisions enhance hedonic preference is important in consumer decisions with hedonic-utilitarian tradeoffs. Examples of such domains could be like the ones we examined in our research (e.g., apartments, snacks, and pens) or others, including the choice of hotel rooms, vacation destinations, choice of cars (sports cars vs. sedans) and recreational activities (movies vs. museums), etc. This issue of two-stage versus single-stage decisions is highly pertinent in online environments where websites often prompt consumers and managers to create shortlists (e.g., Google Shopping's "My Shortlist" tool, all-paris-apartments.com's "shortlist" tool, or Human Resources websites with "candidate shortlist" tools). Further, as consumers are often "on-guard" against overt sales tactics, our findings have implications for personal selling situations (e.g., a real estate agent trying to sell an expensive residential property). In such situations, a skilled salesperson can subtly structure the sales process (i.e., single-stage vs. two-stage) and influence choice.

Limitations and Future Research

We primarily studied situations in which there was a tradeoff where some options were relatively high-hedonic/low-utilitarian, and other options were relatively high-utilitarian/low-hedonic. To test our proposed effect, we examined choice shares of these options. However, according to our framework, two-stage decision-making should more generally enhance preference for hedonic characteristics, and so the effects should apply to other forms of hedonic-utilitarian tradeoffs. For instance, there may be a set of all high-hedonic/low-utilitarian options within a choice domain (e.g., vacations) and a decision-maker must decide whether to purchase within this category, or to go with a no-choice or choice deferral option. In this situation, the decision-maker must weigh the hedonic benefits of the purchase against the implicit utilitarian

costs (e.g., time needed for work projects, health-related goals, etc.). Examining such instances are worthwhile research extensions.

We only examined situations in which the entire decision takes place within a short time frame. Would the effects replicate in longer decisions, such as choice of a university to attend, when the shortlisting and final choice stage are separated by a substantial time gap? In these situations, decision-makers may forget that they reduced the presence of undesirable options when composing a shortlist, and this might turn off our proposed effect. Given these possibilities, future research should test the moderating role of inter-stage time-interval.

Research suggests that prevention focus not only affects hedonic-utilitarian tradeoffs—our topic of inquiry—but it also affects preferences for risky versus risk-free options, temporally distant versus proximal options, and other attribute tradeoffs (Higgins, 1997). Studying how the mechanism identified in our work applies to other tradeoffs would be a worthwhile extension. For example, future research could examine whether two-stage decisions lead to greater preference for risky (vs. risk-free) options in investments, new product launches, insurance choices, and other such risk-related decisions. Taken together, the theoretical framework and findings presented in this manuscript provide an important step towards understanding how differences in the structure of the decision process influence choices. We hope that the findings in this paper stimulate further work in this area, in a variety of decision domains.

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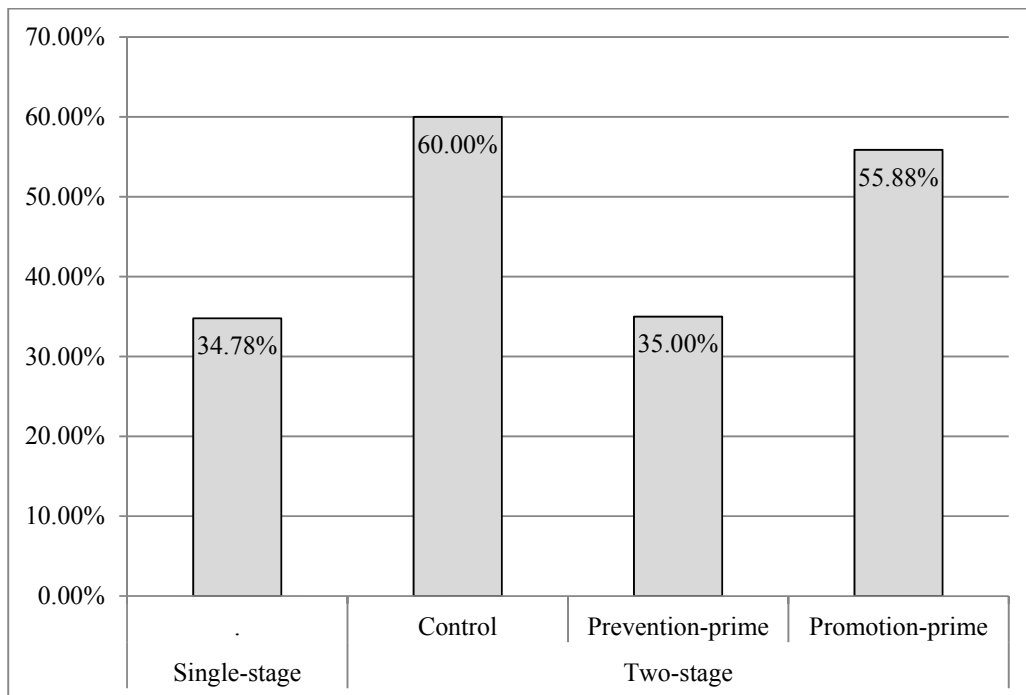
FIGURE 1: CHOICE SHARE OF HEDONIC CANDIDATE IN STUDY 1

FIGURE 2: MEDIATION ANALYSIS IN STUDY 2A

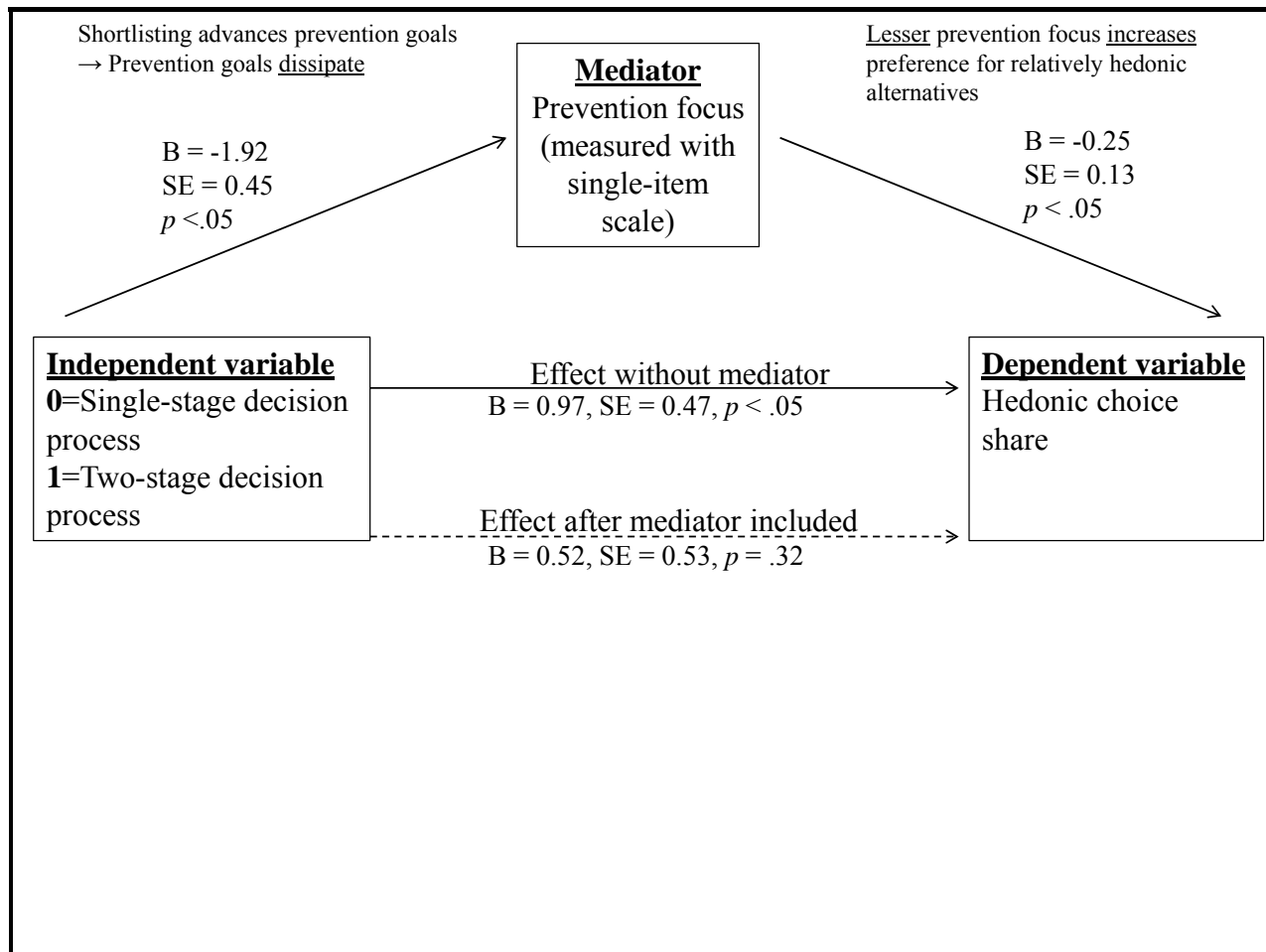


FIGURE 3: MEDIATION ANALYSIS IN STUDY 2B

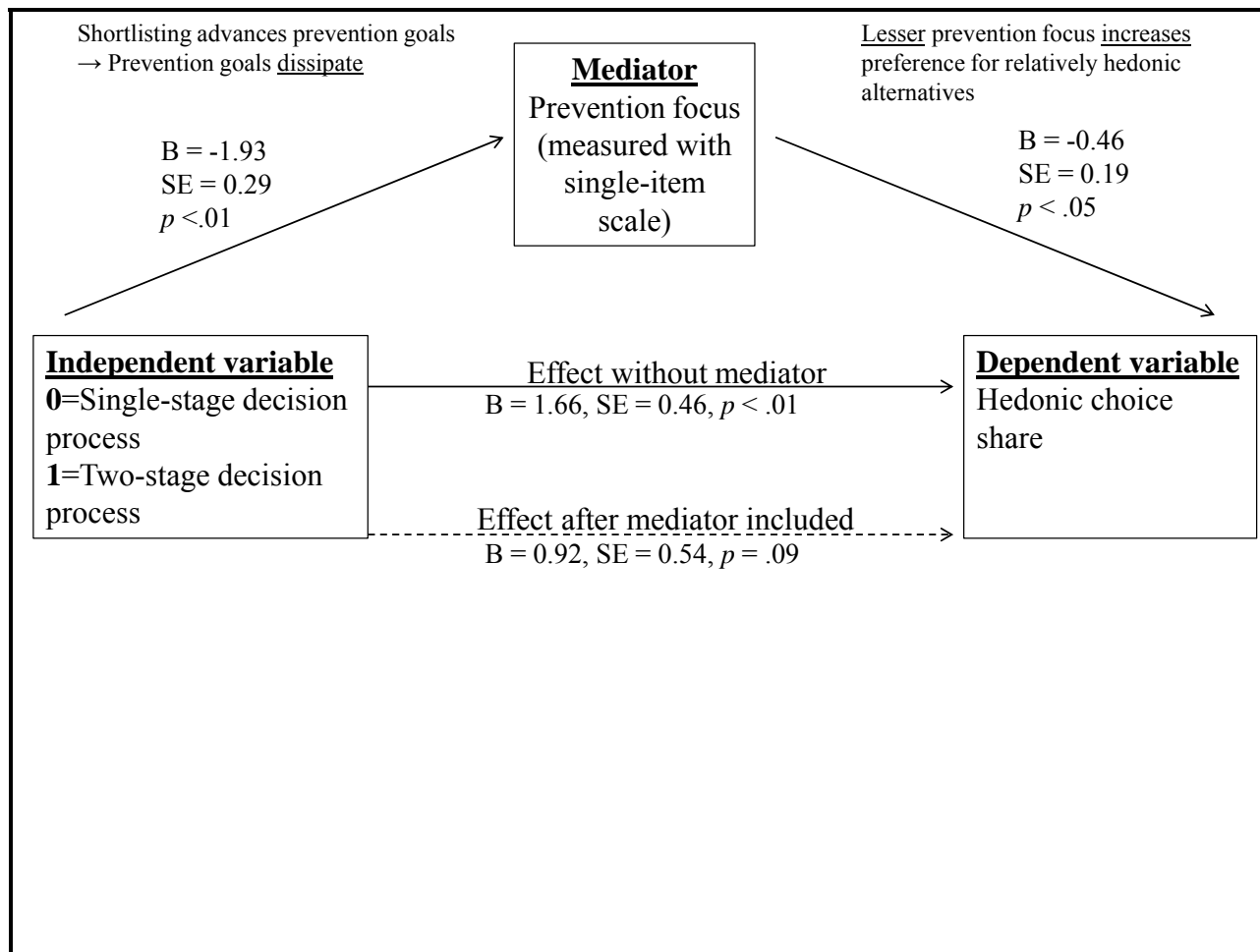
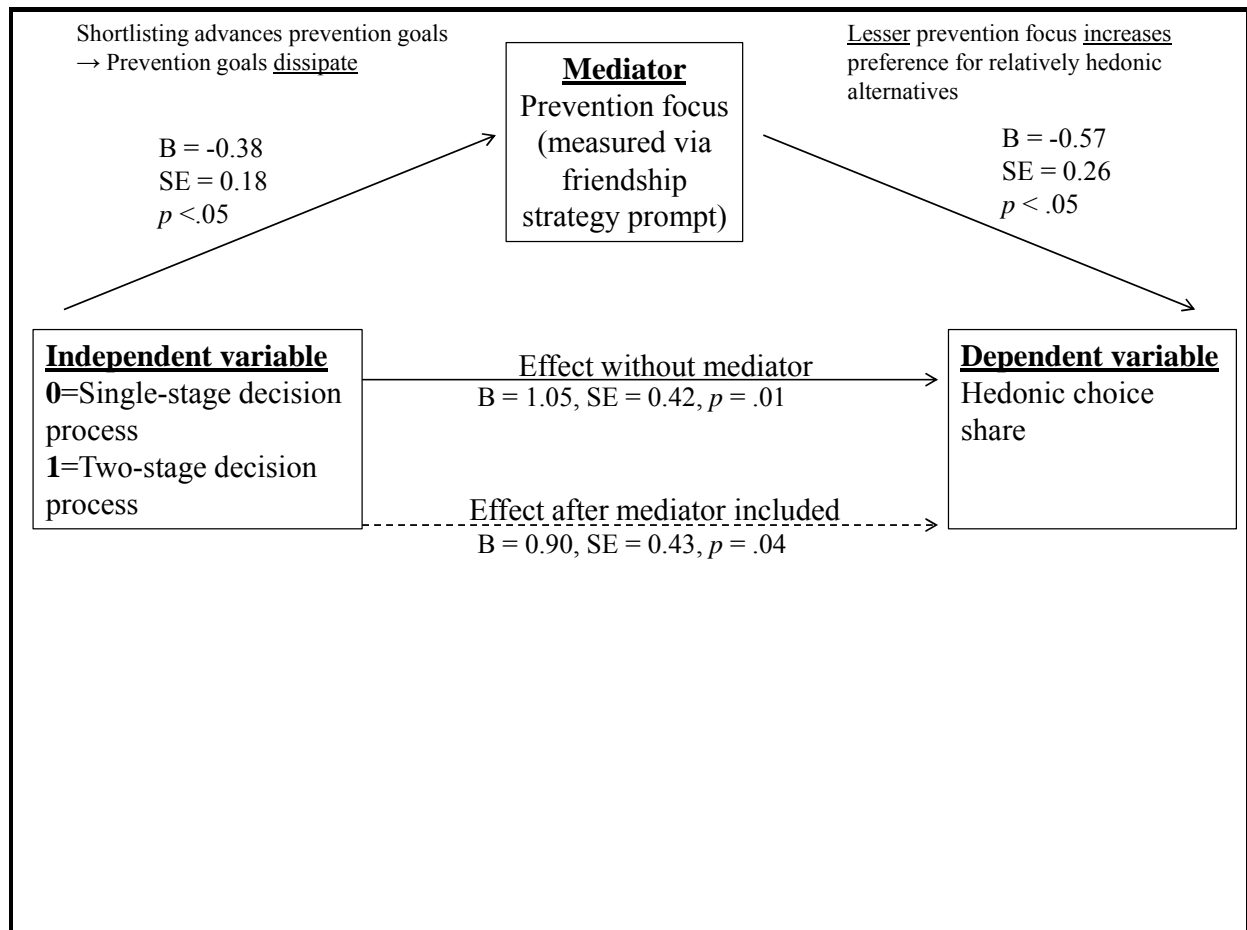


FIGURE 4: MEDIATION ANALYSIS IN STUDY 3B



APPENDIX A: CANDIDATE STIMULI USED IN STUDY 1

| Candidate A (Hedonic focus) | Candidate B (Hedonic focus) | Candidate C (Utilitarian focus) | Candidate D (Utilitarian focus) |
|---|---|--|---|
| 5 years of IT experience. Spent the 10 years prior as a musician. Good knowledge of the software that your office uses, and may be able to quickly learn about the hardware your office uses. | 3 years of IT experience. Fairly good knowledge of software, but has no familiarity with the hardware that your office uses. | 15 years of IT experience. Very good knowledge of both the hardware and software that your office uses. Very highly skilled. | 7 years of IT experience. IT knowledge is good, but not remarkable. |
| Very interesting person with lots of exciting hobbies. Affable and kind, and would make a great work-friend to those in your office. | Nice person to talk to. Seems to get along with people. | Professional demeanor, but a boring person to talk to. Simply does the IT work and talks about computers a lot. | Quite awkward in the interview. May have a difficult time communicating with others. |
| Is willing to work under the terms that your office has set for the IT position. | Has asked for a salary that exceeds what your office is willing to pay. The salary expected by this candidate is unreasonably high. | Is willing to work under the terms that your office has set for the IT position. | Has asked for the first 2 months to be part-time to attend to another personal project. Once working full-time, would like to arrive later in the morning than other employees. |

APPENDIX B: APARTMENT STIMULI USED IN STUDY 2

| Apartment A (Hedonic focus) | Apartment B (Hedonic focus) | Apartment C (Utilitarian focus) | Apartment D (Utilitarian focus) |
|--|--|--|--|
| Not close to work (45 minute drive) | Quite far to drive (55 minutes) | Very close to work (5 minute drive) | Quite close to work (10 minute drive) |
| There is a convenience store four blocks away, but there are no grocery stores in the vicinity | There are no convenience stores or grocery stores in the vicinity | Located near many grocery stores, a pharmacy and a laundromat | Located near a grocery store and a laundromat |
| Train and local bus stops are a 15 minute drive away | Train and local bus stops are a 20 minute drive | The train station and local bus stops are located only 2 blocks away | A local bus stop is located a few blocks away |
| In a quiet and hip neighborhood | In a nice neighborhood, that can get noisy at times | On a busy avenue with a steady stream of traffic | On a busy avenue with a steady stream of traffic |
| Large bay windows overlooking the tree-lined streets, with clear views of the river | Nice windows overlooking a children's playground with a river view | Windows overlooking a parking lot | The one small window overlooks the adjacent building |
| Spacious layout, hardwood floors, and a nice balcony | Moderately spacious layout, hardwood floors and a nice balcony | The apartment is kind of cramped | The apartment is very small and cramped |

APPENDIX C

Pretest 1, Studies 2A-C

This pretest examined whether participants viewed option A as relatively more hedonic and less utilitarian than option C. Participants ($N = 66$ U.S. undergraduates, participating for course credit) read apartment descriptions, and then rated each apartment using the same five-item hedonic-utilitarian scales described in Study 1 (both scales, $\alpha > 0.8$, Spangenberg et al., 1997), but the scale was 5-point (1 = “not at all”, 5 = “extremely”). The ratings confirmed our intended design, as reflected by differences across options on hedonic ratings ($M_A = 3.26$; $M_B = 2.77$; $M_C = 2.22$; $M_D = 1.96$) and on utilitarian ratings ($M_A = 2.39$; $M_B = 1.97$; $M_C = 3.89$; $M_D = 3.64$); apartment A had the highest hedonic rating and apartment C had the highest utilitarian rating. Both comparisons between options A and C (i.e., differences in hedonic and utilitarian ratings for A and C) were significant ($t_s(65) > 2.7$; $p < .01$).

Pretest 2, Studies 2A-C

This pretest examined whether options A and C were perceived as superior to options B and D, respectively. Participants ($N = 21$ U.S. undergraduates, participating for course credit) chose between (i) A and B (the hedonic apartments), and then chose between (ii) C and D (the utilitarian apartments), separately. Participants overwhelmingly ($M_s > 95\%$) chose A and C, over B and D, respectively (binomial $z_s > 3.9$, $p_s < .01$).

Pretest 3, Study 3A

Pre-test participants ($N = 61$ undergraduates, at the same university where Study 3A was held) read a description of the three pen options, looked at the pens, and then ranked them on

hedonic and utilitarian criteria separately (based on scale items in Study 1). For hedonic rankings, 68.85% of participants ranked the university-labeled pen as highest. For the utilitarian rankings, 90.16% of participants ranked the Bic pen set as highest. The used pen had a modal rank of #3 on both rankings. Thus, pre-test results indicated that (i) the university-labeled pen was perceived as more hedonic and less utilitarian than the set of Bic brand pens, and (ii) the used pen was perceived as inferior to the other two pen options on both dimensions. Another pre-test, using ratings instead of rankings, confirmed the same results and showed that the used pen was perceived as inferior on both hedonic and utilitarian criteria.

Pretest 4, Study 3B

Pre-test participants ($N = 84$ undergraduates at the same university, where Study 3B was held) read a description of one of the three pen options (Bic pen set, university logo pen, basketball pen), and then rated the shown option on hedonic and utilitarian criteria (5-item, 7-point scales, see items in Study 1). On hedonic criteria, the set of Bic pens was rated as significantly less hedonic ($M=1.96$) than each of the other two options ($M_{\text{Basketball}} = 5.06$, $M_{\text{University}} = 4.59$; both contrasts, $t(81) < 8.28$, $p < .01$). On utilitarian criteria, the set of Bic pens was rated as significantly more utilitarian ($M = 6.03$) than each of the other two options ($M_{\text{Basketball}} = 3.01$, $M_{\text{University}} = 2.86$; both $t(81) > 8.84$, $p < .01$). The basketball pen and the university logo pen were rated as similar, on both hedonic and utilitarian criteria (both $t < 1.5$, $p > .14$).