

Consumption Effort: The Mental Cost of Generating Utility and the Role of Consumer Energy Level in Ambitious Consumption

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We propose that the essence of consumption is the mental process of generating utility from products, that this process expends *consumption effort*, and that consumers take consumption effort into account in their decision making. In 2 studies, we tested the hypothesis that consumption preferences become more *ambitious*—individuals become more inclined to choose challenging-to-consume products—when consumer energy levels are elevated. In Study 1, energy induced by ingesting caffeine increased participants' tendency to choose subtitled foreign movies rather than domestic remakes of those same movies. Study 2 demonstrated the same effect with naturally occurring energy levels and with consumption experiences whose effortfulness and quality were varied independently. In choosing among sets of poems to read, participants with higher levels of energy exhibited less effort aversion but neither more nor less quality seeking. A reanalysis of Study 1 showed that the energy effect is not simply a case of consumers using more energy when they have more energy, because the energy effect disappeared when participants were made aware of the energy source, suggesting that a preference-correction process occurred. The energy dependence of consumer preferences affords tactical opportunities for marketers, but the welfare implications for consumers are intriguingly unclear, because in both studies we found that energy increased participants' choice of challenging consumption experiences without increasing their liking of those experiences.

“Pleasure is labour too, and tires as much.”

William Cowper (1782/1967, p. 60)

Consumer research has paid a great deal of attention to the various psychological processes that culminate in product acquisition. Less attention has been paid to the consumption event itself, the point at which utility actually comes into being and consumers actually experience value. Moreover, as is true elsewhere, the view of utility in consumer research has tended to be objectivistic in its emphasis, focusing on product attributes as the carriers of utility instead of on the mecha-

nisms that give rise to utility as a subjective experience (Kahneman & Varey, 1991). In this research, we acknowledge that products do not “deliver” utility but rather are raw materials used by consumers in a mental process of utility generation, and we investigated how the nature of this process affects consumer decision making.

We offer a simple theory based on the postulate that generating utility from products is an effortful process requiring the expenditure of what we term *consumption effort*. We propose (a) that different products demand different amounts of consumption effort, (b) that consumers take anticipated consumption effort into account when they choose among products, and (c) that consumers' energy resources at the time of decision making influence their *preference ambitiousness*, or how inclined they are to choose products demanding greater consumption effort. Specifically, we hypothesize that the ambi-

tiousness of consumers' preferences can be systematically altered by modifying energy levels: Higher levels of consumer energy will shift preferences (i.e., choice proclivities) toward products that are more challenging to consume and that may allow for the generation of greater utility but at a greater cost in consumption effort. For example, when the evening is young and energy is high, a consumer at a video store may prefer the subtitled French movie *La Femme Nikita*, but as the evening progresses and energy declines, preferences will become less ambitious and shift toward the less challenging domestic remake of the same story, *Point of No Return*.

This theoretical framework is plausible for several reasons. First, costs play a prominent role in consumer decision making, and consumption effort is the mental cost of generating utility—essentially the “price” that must be paid to acquire the product's utility once the monetary price has been paid to acquire the product. More specifically, consumption effort is an internal cost like the effort cost of making a decision, and consumers are known to take decision effort into account when selecting among decision strategies (Payne, Bettman, & Johnson, 1990). Second, our energy hypothesis can be considered a kind of strategic version of the resource-matching hypothesis, which is the empirically validated idea that information processing is most effective when the level of cognitive resources matches the processing demands of the task (e.g., Anand & Sternthal, 1989; Keller & Block, 1996; Meyers-Levy & Tybout, 1997; Olsen, 1997). Our work, however, differs somewhat from the work on resource matching because, whereas we conceptualize and operationalize energy as a resource in the most fundamental and undifferentiated sense, the work on resource matching tends to construe resources more cognitively in terms of task and person factors (e.g., message incongruity, message relevance, amount of processing time, amount of distraction, presentation rate, knowledge level, motivation, aroused fear, need for cognition), and these factors may have effects not purely associated with basic resources. Furthermore, whereas we focus on consumption choices, resource-matching work typically focuses on dependent variables like persuasion, new product evaluation, and recall of advertising. Nevertheless, the prevalence of resource-matching effects bolsters the speculation that consumers might strategically—if unconsciously—take such effects into account when making their consumption choices. A third basis for the plausibility of our framework is found in some nonexperimental research that puts forward concepts consistent with the idea of consumption effort to explain consumer choice. In particular, Hirschman and Holbrook (1982) described a movie-consumption scenario that parallels our aforementioned video-store prediction, and they argued that the choice of hedonic products should, in theory, be influenced by a consumer's allocation of “imaginal-emotional effort,” which we view as a special case of consumption effort. Similarly relevant is the finding that two effort-related dimensions, intellectual demands and degree of physical exertion, partly ex-

plain the complementarities among consumers' discretionary time uses (Holbrook & Lehmann, 1981).

It is important to recognize that despite the plausibility of our hypothesis, it cannot be taken for granted that energized consumers choose more effortful products. We could be wrong in our basic postulate that utility generation is effortful: Experiencing value may be an automatic process not drawing on limited resources at all. This would be consistent with utility being an unmediated affective reaction (Zajonc, 1980) and in fact would partly justify the objectivist view of utility we noted at the outset. Further, even if generating utility does require effort, consumers' preferences may not accurately anticipate this effort at the time of choice, especially considering that their ability to predict utility itself is limited and subject to systematic error (Kahneman & Snell, 1992). Finally, even if preferences are sensitive to consumption effort, this sensitivity may be independent of consumers' energy levels and hence energy would have no effect on the ambitiousness of preferences.

TESTING THE CONSUMPTION-EFFORT HYPOTHESIS

Our empirical approach follows the general logic of the predisposing paradigm (Gibbs, 1997), which investigates preference change not by manipulating the presentation of the decision problem (e.g., framing the decision) but by manipulating the decision maker's state of mind, thereby predisposing him or her to have certain preferences before the decision problem has even been presented. For example, in a study of desire priming, Gibbs and Forehand (2003) predisposed decision makers to prefer buying over saving by showing them sexually appealing photographs in an earlier and separate task. Although this particular effect was not attributable to mood, mood effects on preference are another, example of predisposing the decision maker (e.g., Kahn & Isen, 1993). The significance of the predisposing approach is that it creates preference change at a deep level. Whereas problem-presentation manipulations such as framing change perceptions (e.g., a loss becomes perceived as a gain), predisposing manipulations can change the decision maker's tastes (Gibbs, 1997).

In this research, we investigated the predisposing effects of consumer energy as a manipulated (Study 1) and measured (Study 2) independent variable. We conceptualized energy as central nervous system activation and in Study 1 we manipulated energy physiologically using caffeine. This allowed us to guarantee differences in central nervous system activation without depending on participants' ability to report differences in phenomenological arousal (Kroeber-Riel, 1979). Caffeine is ideal in this regard because it can be administered naturally and provides an unusually clean manipulation. Compared to arousers such as noise or shock, for example, caffeine is less likely to create distress or other artifacts, and compared to arousers such as exercise (e.g., Sanbonmatsu & Kardes, 1988), caffeine is a truer net provider of energy be-

cause it does not require energy expenditure. To measure naturally occurring energy levels in Study 2, we used participants' self-reports of fatigue.

Our main dependent variables captured preference ambivalence by measuring participants' tendency to choose higher consumption-effort products. In conceptualizing these ambitious products, we first assumed that in general preferences are effort averse and quality seeking. That is, *ceteris paribus*, consumers prefer products that require less effort to consume and products from which greater utility can be generated. However, for hedonic products like those used in this research, effort and quality are probably not independent: High-quality hedonic products will tend to be more costly in terms of consumption effort just as high-quality products in general tend to be more costly in terms of price. This is particularly evident for high-quality entertainment products, which are typically more challenging to consume due to their greater complexity (see Bourdieu, 1984); indeed, some cultural commentators have argued that it is precisely the "ease of consumption" of mass culture products that prevents them from achieving quality (e.g., Macdonald, 1957, p. 61). Thus, prototypically, the products favored by ambitious preferences will be high in both effortfulness and quality. We used movie stimuli to capture this ecological correlation with (Study 1), but we also varied effortfulness and quality independently using poem stimuli (Study 2).

In the next section, we describe our two empirical studies and then a reanalysis of the first. In Study 1, we used a caffeine manipulation to investigate the effect of participants' energy levels on movie choice. In Study 2, we used a pretest to select a set of poems varying orthogonally in effortfulness and quality and then investigated the relation between participants' measured energy levels and how effort-averse and quality-seeking they were in their poem choices. In addition to the basic energy hypothesis, two other issues were investigated. First, by including procedures in which participants actually consumed products, we investigated the relation between choice and utility. Second, by using a more elaborate parsing of experimental conditions in a reanalysis of Study 1, we investigated how the energy effect is moderated by participants' awareness of the energy source.

STUDY 1: INDUCED ENERGY

We used domestic (U.S.) and foreign (distributed in but not made in the United States) movies as product stimuli in Study 1. Foreign movies are more difficult to assimilate and less accessible, especially when subtitled (Holbrook, 1999). Moreover, they tend to be of higher quality than domestic movies, certainly as judged by movie critics (Holbrook, 1999) and ultimately as judged by many consumers, whose tastes tend to move toward those of experts (Schindler, Holbrook, & Greenleaf, 1989). Accordingly, we judged foreign versus domestic movies to be a model case of more chal-

lenging versus less challenging products. Our prediction was that providing participants with caffeine-induced energy would increase their tendency to choose subtitled foreign movies over domestic remakes of those same movies.

Method

Participants. Eighty people (M age = 24; 61% women) at a private U.S. university participated individually in the 90-min laboratory session for a payment of \$12. Potential participants responded by phone to a campus newspaper advertisement and were informed that the study involved beverage tasting. Callers were disqualified if they had a medical condition contraindicating caffeine or if they never drank regular coffee. Participants then signed up for the experiment and agreed to abstain from drinking anything other than water or fruit juice for 6 hr prior to their appointment.

Procedure. At the laboratory, participants learned that the session would consist of several separate experiments and received an instruction/response booklet. The first task, labeled *Consumption-Rate Study*, was presented as a separate study investigating the effect of consumption speed on beverage taste, but it in fact implemented the experimental manipulation by having participants drink a beverage that either did or did not contain caffeine. Participants in the caffeine condition drank an 8-oz instant coffee beverage containing 174 mg of caffeine, approximately the amount in 8 oz of drip-brewed coffee (International Food Information Council, 1994). Participants in the no-caffeine condition drank an 8-oz beverage containing no caffeine. To support the cover story, we instructed participants to drink the beverage at a controlled pace over a 2-min period, timed them as they drank, and then administered a brief mock questionnaire on the "speeded-drinking experience."

To allow the ingested caffeine to reach peak plasma concentrations, we next required participants to complete two filler tasks spanning 30 min (American Pharmaceutical Association, 1993). The first was a hypothetical product-choice task conducted as part of unrelated research ($M = 15$ min). The second ostensibly concerned the effects of subliminal advertising. In this task, we asked participants to listen to an audiotape of white noise that "may or may not contain subliminal messages." This passive monitoring task did not actually involve subliminal messages but functioned to guard against a ceiling effect by reducing participants' baseline activation levels. Participants listened to the white noise for the exact remainder of the 30 min. Immediately thereafter, to support the subliminal advertising cover story, we administered a brief questionnaire about products.

We then presented the real task of interest, describing it to participants as one investigating "how people evaluate movies." Participants were told that they would be presented with pairs of movies, one a remake of the other, and then would be asked to choose their preferred movie from each pair. They

read, “We are not so concerned with ‘objective quality’ judgments, as much as with having you pick the movie you really FEEL like actually watching.” Each of seven movie pairs was represented by the title of a foreign movie juxtaposed with the title of its domestic remake: *La Femme Nikita* versus *Point of No Return*; *Cousin, Cousine* versus *Cousins*; *The Seven Samurai* versus *The Magnificent Seven*; *The Tall Blond Man With One Black Shoe* versus *The Man With One Red Shoe*; *The Vanishing* versus *The Vanishing*; *3 Men and a Cradle* versus *Three Men and a Baby*; and *The Return of Martin Guerre* versus *Sommersby*. Each pair appeared on its own page along with standard movie information. Specifically, participants read a general plot synopsis ($M = 87$ words), which pertained to both movies and which participants knew had been compiled from the video-jacket descriptions. For each of the two movies, participants also saw a quality rating (1 to 4 stars) that they knew came from a movie review book (Castell, 1994), a notation indicating whether the movie was in English or subtitled in a foreign language, a list of the leading cast members, the name of the director, and an unidentified film critic’s quote (e.g., “Bridget Fonda is pure dynamite!”), which participants knew had been taken from the video jacket. For every movie pair in the set, the foreign movie had a higher quality rating than the domestic movie ($M = 3.4$ vs. 2.4 stars).

Two questions on the next page recorded movie choice for the first movie pair and measured preference intensity. The first question asked participants to choose from the two movies whichever one they actually wanted to watch at that moment. The second question asked for the intensity of this preference on a scale ranging from 0 (*no preference for my pick*) to 10 (*extremely strong preference for my pick*). Participants then repeated this procedure for the second movie pair and so on until they had responded to all seven.

Next, participants sampled a particular movie pair by watching 8- to 10-min clips of either *La Femme Nikita* and *Point of No Return* or *3 Men and a Cradle* and *Three Men and a Baby*. Participants viewed the first clip (order was counter-balanced) and rated how much they liked it on a scale ranging from -50 (*intensely disliked*) to $+50$ (*intensely liked*). Then, on the following page using an analogous -50 to $+50$ scale, they answered the question, “Judging from the clip, how much do you think you would like to watch the entire movie right now?” They then repeated this procedure for the other clip. Participants then answered two questions, each on its own page. The first question asked them to rate the “overall quality” of the first movie they had sampled on a scale ranging from -50 (*very bad movie*) to $+50$ (*very good movie*). The instructions asked them not to focus on how much they happened to feel like watching the movie at that moment but to “try and be objective.” The second question was the same but referred to the second movie. An arousal scale appeared on the next page. This scale was the short form of the General Activation subscale from Thayer’s (1978) Activation–Deactivation Adjective Check List, which had respondents report

how well their current state was described by the terms *active*, *energetic*, *vigorous*, *lively*, and *full-of-pep*.

Results

Choice. We quantified the tendency to choose the foreign over domestic movies by multiplying each of the seven movie choices, coded as 1 (*foreign*) or -1 (*domestic*), by its corresponding intensity-of-preference rating (0 to 10) and then summing across the seven movies. Analysis of variance (ANOVA) revealed that caffeine affected this measure as predicted: Participants in the caffeine condition showed a stronger tendency to choose foreign over domestic movies than did participants in the no-caffeine condition ($M = 5.03$ vs. -5.71), $F(1, 78) = 4.31$, $p < .04$. As a secondary test, we examined simple movie choice (i.e., the sum of the seven 1 or -1 movie choices without considering preference intensity), and this measure also showed the caffeine effect ($M_{\text{caffeine}} = 3.78$ vs. $M_{\text{no-caffeine}} = 3.00$), $F(1, 78) = 4.62$, $p < .03$.

Experienced utility. We quantified relative liking of the foreign versus domestic movie clip by taking the difference in the two liking ratings, and we quantified relative anticipated liking of the entire foreign versus domestic movie by taking the difference in the two anticipated liking ratings. Caffeine participants showed neither increased relative liking of the foreign clip nor increased relative anticipated liking of the entire foreign movie ($p < .68$ and $p < .79$, respectively), and this remained true when the two movie pairs we tested were examined separately (lowest $p < .34$). Caffeine also had no effect on overall liking as measured by liking ratings averaged across the foreign and domestic movies ($p < .54$ for clip ratings and $p < .49$ for anticipated movie ratings).

Other measures. We examined overall preference intensity, independent of preference direction, by summing the 0 to 10 intensity-of-preference ratings without incorporating the -1 or 1 choice responses, and caffeine had no effect on this measure ($p < .31$). We quantified relative perceived quality of the foreign versus domestic movie clip by taking the difference in the two quality ratings. On average, relative perceived quality was positive ($M = 4.73$), $t(79) = 1.98$, $p < .05$, indicating that participants tended to agree with the critics’ assessment that the foreign movies were superior. More important, however, caffeine had no effect on this measure ($p < .35$). Caffeine also did not affect participant’s self-reported arousal levels ($p < .29$). We can safely assume that our physiological manipulation did in fact increase energy, and therefore the absence of an arousal difference suggests that phenomenological arousal did not correspond well to the energy resource responsible for the observed effects on choice.

Discussion

As predicted, caffeine-induced energy did increase participants' tendency to choose foreign movies over domestic remakes of those same movies. This effect cannot be attributed to caffeine participants simply expressing whatever preferences they happened to have more forcefully because caffeine had no effect on overall preference intensity. Caffeine also had no effect on self-reported arousal or on overall liking of the movies; therefore, the pattern of results does not support misattribution of arousal or positive-mood accounts, which would predict an increase in the attractiveness of both movies rather than a differential effect of energy on the foreign movies relative to the domestic ones (Allen, Kenrick, Linder, & McCall, 1989; Gorn, Goldberg, & Basu, 1993). In addition, caffeine did not affect relative perceived quality of the movies and there was no evidence that the caffeine effect on choice was mediated by enhanced perceptions or beliefs regarding the foreign movies or by the operation of an arousal-enhanced positive halo effect (Bagozzi, 1996).

In contrast to movie choice, the experienced utility of the movies was unaffected by caffeine. That is, caffeine participants did not experience greater relative liking for foreign movies at the time of consumption even though they had exhibited a greater tendency to select those movies at the time of choosing. This choice-utility dissociation is provocative because if confirmed, it raises the possibility that ambitious preferences may lead consumers astray when it comes to making welfare-maximizing choices.

STUDY 2: NATURALLY OCCURRING ENERGY

We designed Study 2 to achieve four goals. First, it provided a convergent test of the consumption-effort hypothesis by using measured energy levels. We judged it worth the inferential weakness of a measured design to determine whether the energy result holds for naturally occurring energy levels. Second, Study 2 explored the mechanism of the energy effect by removing the natural confound between effortfulness and quality in the stimulus set and investigated whether energy is associated with preferences becoming less effort averse, more quality seeking, or both. Third, by explicitly manipulating product effortfulness, Study 2 addressed a weakness of Study 1, specifically that some unspecified attribute of the foreign movies aside from effortfulness might account for the energy effect. Fourth, Study 2 reexamined the apparent dissociation between choice and experienced utility observed in Study 1. The lack of an energy effect on liking in Study 1 must be viewed as highly tentative, not only because interpreting any null result is risky but also because participants consumed mere samples of the movies, and hedonic products like movies may need to be consumed as gestalts (Hirschman & Holbrook, 1982). Therefore, to enhance sensi-

tivity to an energy effect on liking, Study 2 used products that could be consumed in whole.

Method

We used poems to represent four stimulus conditions (see Figure 1): low quality/low effort (L_{QL_E}), low quality/high effort (L_{QH_E}), high quality/low effort (H_{QL_E}) and high quality/high effort (H_{QH_E}). We selected three poems for each condition on the basis of a pretest in which 25 people from the same population as in Study 2 evaluated 30 poems (taken from four sources: Abrams, 1986; Allison et al., 1983; Dyer, Grace, & Ince, 1989; Mendelson, 1974). Study 2 investigated choice and liking across these four stimulus conditions as a function of participants' measured energy levels. Because Study 1 cast doubt on participants' ability to report energy levels in terms of arousal, here we had them do so in terms of fatigue. Thus, our prediction was that participants who reported less fatigue

		Poem Quality		
		Low	High	
Poem Effort	Low	q = 158 e = 125	q = 245 e = 129	Average e = 127
	High	q = 178 e = 228	q = 223 e = 233	Average e = 231
		Average q = 168	Average q = 234	

FIGURE 1 Stimulus design of Study 2: Mean quality (q) and effort (e) ratings for the four poem conditions at pretest. Actual scores have been multiplied by 100. Pretest participants rated "how good the poem is" on a scale ranging from 1 (*moderate quality*) to 3 (*high quality*) and "how much work it takes to digest the poem" on a scale ranging from 1 (*not effortful*) to 3 (*effortful*). Had they been produced by random sampling, the differences achieved between the two quality levels and between the two effort levels would be considered highly significant, $F(1, 23) = 36.74, p < .0001$, and $F(1, 23) = 72.33, p < .0001$, respectively. The L_{QL_E} poems were "Pretty Coloured Sails" by Victor Ince, "Where the Bee Sucks, There Suck I" by Shakespeare, and "It Was a Lover and His Lass" by Shakespeare; the L_{QH_E} poems were "Adam Lay Bound" by anonymous, "My Galley Charged with Forgetfulness" by Thomas Wyatt, and "Amoretti, Sonnet 68" by Edmund Spenser; the H_{QL_E} poems were "Lament for Summer" by Leigh Dyer, "The More Loving One" by W. H. Auden, and "The Last Leaf" by Oliver Wendell Holmes; and the H_{QH_E} poems were "Methought I Saw the Grave Where Laura Lay" by Sir Walter Raleigh, "Are They Shadows" by Samuel Daniel, and "Chorus Sacerdotum" by Lord Brooke Fulke Greville.

would make poem choices that were less effort averse, more quality seeking, or both.

Participants. Fifty-seven people (M age = 21; 68% women) at a private U.S. university participated individually in the 1-hr study for a payment of \$10. Potential participants responded by phone to a campus newspaper advertisement and were informed that the study involved consumer decision making. To increase the age homogeneity of the sample and thereby increase the chance of detecting an energy effect on liking (Jarvis, 1993), only those 30 years of age and younger were signed up for the study.

Procedure. At the laboratory, participants learned that they would read poems and received an instruction/response booklet describing how they would be able to choose the kinds of poems to read. The instructions stated, "We want to construct a set of poems such that you will like the upcoming poetry-reading task as much as possible, so please think carefully about what kind of poetry-reading experience you feel like having." Participants read that four categories of poems had been selected "by asking another set of Stanford subjects to evaluate poems in terms of (a) 'quality' (i.e., how good the poem is) and (b) 'effortfulness' (i.e., how much work it takes to digest the poem)." Consistent with the rating scales used in the pretest, the poem categories were labeled *Moderate Quality/Not Effortful* ($L_Q L_E$), *Moderate Quality/Effortful* ($L_Q H_E$), *High Quality/Not Effortful* ($H_Q L_E$), and *High Quality/Effortful* ($H_Q H_E$). To make their choices, participants divided 100 "preference points" among the four poem categories.

Once the preference points had been allocated, the instructions confessed that the assortment of poems to be read would in fact be unrelated to participants' stated preferences, and participants proceeded to read 2 practice poems and then the 12 poems that had been selected in the pretest. After reading each poem, participants rated it on a scale ranging from -7 (*I dislike intensely*) to 7 (*I like intensely*). Participants then gave their own evaluations of the poems' quality and effortfulness using scales from the pretest (see Figure 1) and filled out Mano's (1991) 24-item Mood scale. Finally, using a scale ranging from 1 (*not at all fatigued*) to 7 (*extremely fatigued*), participants reported their energy level just prior to arriving in the laboratory.

Results

We split the fatigue measure (at $Mdn = 3$) to create low- and high-energy conditions. Participants' quality and effort ratings validated our stimulus manipulation: Participants perceived a significant mean quality (q) difference, $F(1, 45) = 49.3, p < .0001$, between the low- and high-quality poems ($L_Q L_E q = 1.45, L_Q H_E q = 2.04$ vs. $H_Q L_E q = 2.07, H_Q H_E q = 2.35$) and a significant mean effort (e) difference, $F(1, 45) = 195.1, p < .0001$, between the low- and high-effort poems ($L_Q L_E e = 1.28, H_Q L_E e = 1.34$ vs. $L_Q H_E e = 2.34, H_Q H_E e = 2.41$).

Choice. Table 1 displays the mean allocations of preference points. Using these allocations as a repeated dependent measure of choice, ANOVA revealed significant effects for poem quality, $F(1, 55) = 129.70, p < .0001$, and poem effort, $F(1, 55) = 27.63, p < .0001$. On average, there was a tendency to choose high- over low-quality poems by a margin of 22.22 points and a tendency to choose low- over high-effort poems by a margin of 13.00 points. In other words, preferences were quality seeking and effort averse, as we assumed is generally true. The interaction between quality and effort was also significant, $F(1, 55) = 14.97, p < .0003$. When quality was low or when effort was high, the other stimulus dimension had a weaker impact on choice by a margin of 12.58 points. Most important, the interaction between effort and energy was significant, $F(1, 55) = 9.96, p < .003$: Low-energy participants exhibited stronger effort aversion than did high-energy participants (see Figure 2). Specifically, the strength of the tendency to choose low- over high-effort poems was 20.81 points for the low-energy group but only 5.20 points for the high-energy group. No other effects were significant or marginal (lowest $p < .29$).

Experienced utility. Using liking ratings for the 12 poems as a repeated dependent measure and including a participant variable, ANOVA revealed a significant poem quality effect, $F(1, 682) = 40.57, p < .0001$: Participants liked the high quality poems ($M = 1.56$) more than the low quality poems ($M = -0.03$). No other liking differences were significant (lowest $p < .26$). Most notable, liking was not affected by energy or by energy in interaction with any of the other variables. See Table 2.

TABLE 1
Study 2 Choice Results: Mean Allocations of Preference Points

Poem Effort	Low-Energy Participants		High-Energy Participants	
	Low-Quality Poems	High-Quality Poems	Low-Quality Poems	High-Quality Poems
Low	21.13	49.68	13.27	41.73
High	7.32	21.87	13.65	30.96

Note. Significant effects are those of quality ($p < .0001$), effort ($p < .0001$), the Quality \times Effort interaction ($p < .0003$), and the Effort \times Energy interaction ($p < .003$).

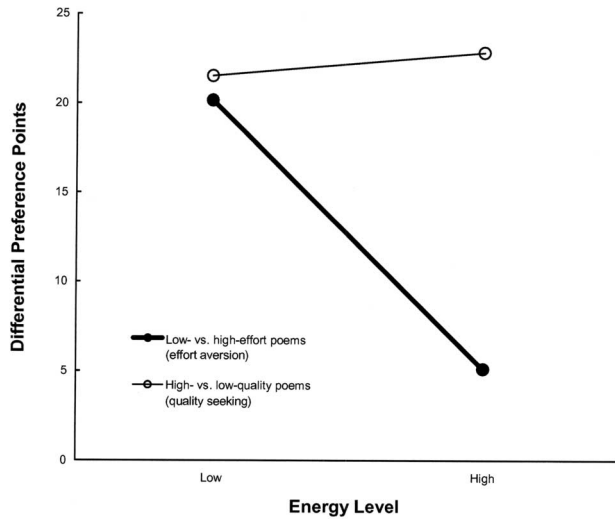


FIGURE 2 Study 2 choice results: Differential preference points allocated to low- versus high-effort poems (effort aversion) and to high- versus low-quality poems (quality seeking) as a function of participants' energy level. The energy effect on effort aversion is significant ($p < .003$).

Other measures. Energy did not significantly affect participants' ratings of poem quality or effort, but the results were marginally significant (both at $p < .10$). Energy condition had an effect on Mano's (1991) mood instrument, $F(8, 54) = 4.33, p < .0004$, with the Bored subscale showing a significant contrast between the energy groups ($p < .0001$, no other $p < .28$). In particular, high-energy participants reported being less bored ($M = 2.35$) than did low-energy participants ($M = 5.06$), suggesting that boredom may be part of the phenomenology of having unambitious preferences.

Discussion

As predicted, participants who reported less fatigue had poem preferences that were more ambitious. This result corroborates with naturally occurring energy the induced-energy result of Study 1. The lack of a relation between energy and quality seeking suggests that the mechanism of the energy effect is purely one of decreased effort aversion. In addition, the results support our general assumptions that preferences are effort

averse and quality seeking. They also suggest that product effortfulness and product quality each has its greatest impact on choice when the other dimension is at its more agreeable level, when quality is high or effort is low. A possible explanation for this is that negative outcomes may be cognitively intrusive to decision makers (Hogarth, Gibbs, McKenzie, & Marquis, 1991); therefore, when quality is low or when effort is high—both arguably negative outcomes—attention may be diverted from the other stimulus dimension, giving it less weight in the choice process.

Like Study 1 but using products that could be consumed in whole, Study 2 failed to find that higher energy was associated with enhanced liking of the more effortful products, even though it was associated with increased choice of these products. Poem effort and the interaction between effort and quality influenced choice but had no effect on liking. Thus, far from reconciling the choice-utility dissociation uncovered in Study 1, Study 2 found additional factors that shift consumers' choices without producing a corresponding shift in experienced utility. Although null results do not prove the absence of an effect, the repeated failure to find an energy effect on liking is suggestive, especially given that Study 2 was designed to detect precisely this effect and that the liking measure did successfully register other effects.

REANALYSIS OF STUDY 1: AWARENESS AND PREFERENCE AMBITIOUSNESS

We performed a reanalysis of Study 1 to explore how consumers' awareness of the induced-energy source might moderate the energy effect. This awareness issue bears importantly on the interpretation of our findings, which could be argued to arise from participants' self-fulfilling beliefs. That is, participants in Study 1 may have simply acted out their beliefs that induced energy will or should make consumption preferences more ambitious. If this account is correct, then source awareness should facilitate the energy effect. Alternatively, source awareness could inhibit the energy effect if consumers consider induced energy to be somehow illegitimate and hence try to counteract its influence. This would be consistent with prior research that has shown that consumers sometimes try to correct for unwanted contextual influences on their decision making (Houghton, Kardes, Mathieu, & Simonson, 1999; Meyers-Levy & Tybout, 1997).

TABLE 2
Study 2 Experienced-Utility Results: Mean Liking Ratings

Poem Effort	Low-Energy Participants		High-Energy Participants	
	Low-Quality Poems	High-Quality Poems	Low-Quality Poems	High-Quality Poems
Low	-0.15	1.86	-0.08	1.23
High	-0.08	1.42	0.18	1.73

Note. The only significant effect is that of quality ($p < .0001$).

Method

There were four beverage conditions in the reanalysis of Study 1: two caffeine conditions, namely coffee and coffee falsely presented to participants as decaffeinated (pseudodecaf), and two no-caffeine conditions, namely water and herbal tea. Participants in the coffee condition drank Orange Cappuccino, which is one of General Foods instant International Coffees™, and they were told, “I’m obligated to inform you that you will be drinking coffee, and this coffee is caffeinated so you will feel stimulated.” Participants in the pseudodecaf condition drank the same instant coffee but were told that the coffee was decaffeinated and that they would not feel stimulated. Participants in the water condition drank spring water and were told that it would not make them feel either stimulated or unstimulated. In the herbal tea condition (included to explore for a possible negative energy effect), participants drank Celestial Seasonings® Sleepytime® tea, which they were told contained “the depressant chamomile” and would perhaps make them “feel sleepy.”

Results

Choice and experienced utility. Table 3 displays means for the major dependent measures. Beverage condition affected the tendency to choose foreign movies over domestic remakes of those same movies, $F(3, 76) = 3.90, p < .01$. Planned pairwise contrasts revealed that participants in the pseudodecaf condition had a stronger tendency to choose foreign over domestic movies than did participants in the coffee condition ($p < .02$), water condition ($p < .05$) and herbal tea condition ($p < .001$); the contrasts among these latter three conditions were not significant (lowest $p < .19$). As in the earlier analysis, we examined simple movie choice (i.e., the sum of the seven 1 or -1 movie choices without considering preference intensity), and this measure also showed the beverage effect, $F(3, 76) = 3.92, p < .01$. The pattern of differences on simple choice was the same as on tendency to choose, with participants in the pseudodecaf condition choosing foreign movies ($M = 4.35$) more than did participants in the coffee condition ($M = 3.20, p_{\text{difference}} < .03$), water

condition ($M = 3.30, p_{\text{difference}} < .04$), and herbal tea condition ($M = 2.70, p_{\text{difference}} < .001$). The contrasts among these latter three conditions were not significant (lowest $p < .23$). In keeping with the choice-utility dissociation found earlier, beverage condition had no effect on any measure of liking.

Other measures. Overall preference intensity, independent of preference direction, was unaffected by beverage condition ($p < .54$). Beverage condition did affect self-reported arousal as measured using Thayer’s (1978) instrument, $F(3, 75) = 3.36, p < .02$. Planned pairwise contrasts among the means shown in Table 3 revealed that participants in the coffee condition reported greater arousal than did participants in the water condition ($p < .005$). Participants in the pseudodecaf condition reported arousal levels that were marginally lower than participants in the coffee condition ($p < .06$). If confirmed, this latter result would suggest that self-reports of arousal track participants’ beliefs about their stimulation levels rather than actual levels of physiological activation. Surprisingly, however, participants in the herbal tea condition reported greater arousal than participants in the water condition ($p < .03$), perhaps indicating that they viewed the herbal tea as a “pick-me-up” despite having been told that it might make them sleepy. No other arousal contrasts were significant (lowest $p < .19$). Whatever may account for the self-reported arousal effects, they clearly cannot be mediating the energy effects on choice.

Discussion

Source awareness inhibited the energy effect on choice. When it was obvious to energized participants that they had ingested caffeine, they did not exhibit the increased tendency to choose foreign over domestic movies. These aware participants, though no less physiologically energized than unaware participants, apparently corrected their preferences to account for the effect of the caffeine (Houghton et al., 1999). An alternative possibility is that participants “discounted” the induced energy so that it had no effect on their preferences in the first place (Schwarz et al., 1991). Doing so, however, would probably have been difficult in our study because

TABLE 3
Reanalysis of Study 1: Mean Scores on the Major Dependent Measures

Beverage Condition	Tendency to Choose Foreign Over Domestic Movie ^a ($p < .01$)	Relative Liking of Foreign Clip ($p < .85$)	Relative Anticipated Liking of Foreign Movie ($p < .75$)	Self-Reported Arousal ^b ($p < .02$)
Water	-1.08	3.25	3.50	5.65
Herbal tea	-10.35	4.25	1.60	9.10
Coffee	-3.20	-1.50	-0.50	10.00
Pseudodecaf	13.25	4.50	9.00	7.05

Note. Pseudodecaf = coffee falsely presented to participants as decaffeinated.

^aSignificant pairwise contrasts are pseudodecaf versus herbal tea ($p < .001$), pseudodecaf versus coffee ($p < .02$), and pseudodecaf versus water ($p < .05$). The contrast between herbal tea and water is not significant ($p < .19$). ^bSignificant pairwise contrasts are coffee versus water ($p < .005$) and herbal tea versus water ($p < .03$). The contrast between pseudodecaf and coffee is marginal ($p < .06$).

the judgment task and influence factor were contemporaneous and both affective in nature (Ottati & Isbell, 1996). Therefore, preference correction seems to be the better account of our source-awareness findings.

GENERAL DISCUSSION

We draw three main conclusions from this research. First, as hypothesized, higher energy levels do make consumer preferences more ambitious and shift consumption choices toward more challenging products. Study 1 participants who had been energized by caffeine exhibited a stronger tendency to choose foreign movies over domestic remakes of those same movies. Study 2 corroborated this result with naturally occurring energy levels and with products whose effortfulness and quality were varied independently: Participants with higher measured energy levels exhibited a stronger tendency to choose more effortful over less effortful poems. Overall, the findings indicate that the energy effect results from reduced effort aversion not increased quality seeking, misattributed arousal, induced mood, or altered product perceptions. Second, the role of energy in consumer choice is not simply a matter of consumers with more energy choosing to use energy, because energy has no effect when the energy source is made obvious. In the reanalysis of Study 1, participants who knew they had ingested caffeine corrected their preferences to account for the energy effect and did not show the increased tendency to choose foreign over domestic movies. Third, although energy does change which products consumers choose, it apparently does not change the utility they experience when consuming those products. Energy increased participants' preference for foreign movies and effortful poems but did not increase how much they liked the experience of consuming these products.

The basic implication of our findings for marketing is that marketers can influence consumer choice by taking into account and managing consumers' energy levels. For example, due to fluctuations in naturally occurring energy, it may be advantageous to advertise cerebral movies earlier in prime time, when viewers are more energetic; to face billboards for "museum" vacations toward morning traffic and those for "beach" vacations toward evening traffic; and to offer easier fiction at a bookstore's airport locations. Similarly, with respect to inducing energy in consumers, it may be advantageous to offer coffee (discretely) at avant-garde art galleries; to use brighter, more arousing design elements in brochures for opera subscriptions; and to play up-tempo music in architecturally innovative homes being shown for sale. Moreover, the consumption-effort principle that underlies these recommendations may also apply outside the domain of hedonic products insofar as consuming some nonhedonic products also demands significant expenditures of effort, as is perhaps most obvious

with technological products such as computer software applications or consumer electronics.

Although the marketers of ambitious products will benefit by energizing consumers, the welfare implications for consumers are not so clear. Interestingly, the preference-correction phenomenon observed in the reanalysis of Study 1 may indicate that consumers sense that they should not allow energy to influence their choices. The observed dissociation between the choice and utility effects of energy shows that energy may indeed make certain products more attractive without making them more valuable. However, this is not necessarily a problem for consumers if the assumed positive correlation between product effortfulness and quality holds and energy generally shifts choice toward products that are higher in utility anyway, as was the case in our movie study, though not in our poem study. Moreover, the conclusion that there is no energy effect on liking must be considered tentative. Perhaps we failed to detect such an effect because we focused too simplistically on isolated consumption decisions. In particular, it may be more appropriate to measure the experienced-utility effects of energy in terms of the liking of product portfolios, across which consumers try to efficiently allocate their budget-constrained energy resources. This notion would be consistent with our analogy between consumption effort and price: Energizing consumers may enable them to "afford" a higher utility portfolio of products, even though it may not increase the utility from any given product. To explore these issues further, future research could study the consumption of portfolios of products across time (see Bettman, Luce, & Payne, 1998), as well as probe consumers' "intuitive hedonics" or implicit theories regarding the relation between product liking and energy (Snell, Gibbs, & Varey, 1995).

This research has several theoretical implications. First, it reconfirms the usefulness of exploring preference changes that are created by predisposing the decision maker—that is, by manipulating the decision maker's mental state while holding constant the presentation of the decision problem (Gibbs, 1997). Second, it identifies energy level as a particular mental-state variable that predisposes consumers to have certain preferences. Like other predisposing variables, energy level can be viewed metaphorically as changing the personality of the decision maker rather than the perception of the decision problem, and, cultural factors notwithstanding (Bourdieu, 1984), greater discretionary energy may partially account for the seemingly dispositional consumption habits of high-social-status consumers. Third, the research demonstrates that ambitiousness is a dimension along which preferences can be usefully distinguished to capture systematic variation in a decision maker's tendency to choose challenging consumption experiences. Finally, we suggest that the essential act of consumption is the mental act of generating utility from products, and this work shows that the utility generation process can be partly understood in terms of the consumption effort it expends.

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