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A Sexual Photo and a Dolphin-Shaped Pen: Effect of Visceral State on Hedonic Choice

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Abstract: We investigate whether visceral state and temporal distance influenced their choice between a hedonic and a utilitarian product. We hypothesize that consumers are more likely to choose a hedonic product when they are hot (e.g., hungry or sexually driven) than when they are cold (e.g., not hungry or not sexually driven). We further hypothesize that the effect of visceral state on hedonic-utilitarian choice is moderated by temporal distance; hot-cold choice difference disappears when consumers make a choice in the distant future. Our two hypotheses were supported by two experiments. We discuss academic contributions and managerial implications of our findings.

Keywords: Visceral state – hedonic – utilitarian – temporal distance.

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Introduction

Different from economists who argue that people should base their decisions on their long-term preferences, behavioral decision researchers have discovered that people often behave myopically under the influence of affect, maximizing short-term gratification with insufficient attention to long-term consequences (e.g., Pham 1998). According to Loewenstein (1996), for example, people shape their preference depending on the momentary visceral state and make different choices between when they are in the hot state and when they are in the cold state.

Although the impact of visceral state on decision making has been much discussed, whether it determines people's choice between hedonic and utilitarian options have been little discussed. If this is the case, the more important question is when visceral state systematically changes choice and when it does not. In the present work, we draw on the literature on visceral state and temporal distance to examine whether consumer choice between hedonic and utilitarian options depend on visceral state.

Literature review

Choice: Hedonic vs. Utilitarian

Consumers are known to pursue one of the two goals while they make a choice: hedonic goal and utilitarian goal. According to Hirschman and Holbrook (1982), the hedonic goal is the consummatory affective gratification derived from sensory attributes and the utilitarian goal is the instrumental benefit or expectation of consequences linked with non-sensory, functional attributes. A similar distinction can be made for products. Similarly, hedonic products are the products whose consumption is primarily characterized by an affective and sensory experience of aesthetic or sensual pleasure, fantasy, and fun. Alternatively, utilitarian products are the products whose consumption is cognitively driven, instrumental, and goal oriented, and that accomplish a functional or practical task.

Since goals and products have been divided into two categories, researchers have examined what determines their choice between hedonic and utilitarian options. In experimental studies, subjects were asked to choose between two pens, one is nicely designed but works poorly and the other is poorly designed but works nicely. In other studies, they were provided with two apartments, one is far from the office but has a scenic view and the

other is located within walking distance but lacks a view. Researchers have found that choices depend on a few factors including, for instance, processing resource (Shiv & Fedorikhin, 1999), decision task (Dhar & Wertenbroch, 2000)the authors examine how consumer choice between hedonic and utilitarian goods is influenced by the nature of the decision task. Building on research on elaboration, the authors propose that the relative salience of hedonic dimensions is greater when consumers decide which of several items to give up (forfeiture choices, acquisition mode (O'Curry & Strahilevitz, 2001), evaluation mode (Okada, 2005), and preference mode (Chitturi, Raghunathan, & Mahajan, 2007)the authors predict that contexts involving functional versus hedonic trade-offs evoke a variety of both negative and positive emotions, including guilt/anxiety, sadness/disappointment, cheerfulness/excitement, and confidence/security. These predictions are confirmed. Furthermore, an analysis of the intensities of these specific emotions reveals the following additional insights: (1. Findings generally suggest that, compared to the utilitarian option, people are more likely to choose the hedonic option when they have insufficient resources to compare the two given options carefully (e.g., limited processing resource or instant decision making).

Visceral state: Hot vs. Cold

Loewenstein (1996) coined the term, visceral state, in his work on the hot-cold empathy gap. In his research, visceral states encompass a wide range of negative emotions (e.g., anger, fear), drive states (e.g., hunger, thirst, sexual desire), and feeling states (e.g., pain), all of which attract people's attention and motivate them to engage in specific behaviors. The crux of the hot-cold empathy gap is that people in the hot state behave differently than when they are in the cold state. Furthermore, when people are in the hot state, they tend to under-appreciate the extent to which their behavior is determined by their visceral state. Visceral state can shape consumer choice within the context systematically. Loewenstein, Nagin, and Paternoster (1997), for instance, demonstrated that subjects behaved more aggressively when they saw a picture of a nude woman. Read and Van Leeuwen (1998)the preferences that should be relevant are those that will prevail when the consequences occur. However, consistent with the notion of an intrapersonal empathy gap (Loewenstein, 1996 demonstrated that hungry subjects were more likely to choose junk food while the subjects who were not hungry were more likely to choose healthy fruits. More recent studies show that visceral state even affects people's behavior in irrelevant domains as well. Li (2008) chocoiate cookies showed in her study that subjects showed significant impatience in general consumptions when they were exposed to chocolate desserts.

We propose that visceral state affects consumers' choice between hedonic and utilitarian products in an irrelevant domain. In particular, we predict that people in the hot state are impatient and want to choose the products that bring them emotional benefit (hedonic products) rather than the products that bring them functional benefit (utilitarian products). For example, when they are hungry, they will be more likely to choose an aesthetically appealing pen than when they are not hungry.

H1: When consumers are in the hot state, they are more likely to choose a hedonic product than when they are in the cold state.

Temporal distance: Near future vs. Distant future

According to the Construal Level Theory (CLT) proposed by Trope and Liberman (2010), mental construal involves abstraction and the temporal distance can determine the level of abstraction. People tend to construct abstract representations of the information pertaining to distant future events, whereas they construct concrete representations of the current or near future events (Liberman, Sagristano, & Trope, 2002). Trope and Liberman (2010) showed that not only temporal distance but also spatial and social distances influence the level of mental construal, which in turn affects subjects' predictions and preferences.

In this work, we propose that temporal distance influences the impact of visceral state on consumers' choice between hedonic and utilitarian products. Our intuition is that temporal distance dominates the impact of momentary visceral state. For instance, when consumers make a choice in the near future, they construct their choice event in a concrete way and thus their choice is heavily influenced by their visceral state. However, when they make a choice in the distant future, they construct the representations of their choice in an abstract way. Doing so will reduce or even eliminate the impact of visceral state on choice.

H2a: When making a choice in the near future, consumers in the hot state are more likely to choose a hedonic product than consumers in the cold state.
H2b: When making a choice in the distant future, consumers in the hot state are NOT more likely to choose a hedonic product than consumers in the cold state.

Studies

Study 1

- *Objective.* In this study, we tested our first hypothesis. We manipulated the visceral state of the subjects and examined whether their choice differs depending on their visceral state.

- *Design.* We conducted a 2 (Visceral state: Hot vs. Cold) between-subjects design experiment. We manipulated visceral state in accordance with a prior work in which subjects answered the same questionnaire in two different time windows (Read and Leeuwen 1998). In their experiment, subjects who answered the questionnaire in the late afternoon were in the hot state, whereas subjects

who answered the questionnaire right after lunch were in the cold state. The theory behind this manipulation was that subjects in the former condition were hungry while those in the latter condition were not. We adopted their method and then recruited two groups of students at two different times of one day. The subjects in the hot condition completed their questionnaire between 4:30 PM and 5:30 PM, and the subjects in the cold condition did so between 1:00 PM and 2:00 PM.

- *Stimuli.* We conducted a pre-test in order to generate a pair of hedonic option and utilitarian option. We recruited 10 subjects and provided them with the definition and a brief explanation about the concepts of hedonic product and utilitarian product (Strahilevitz & Myers, 1998). Next, they were asked to write down as many hedonic attributes and utilitarian attributes about pens. We found that shape is the most frequently answered hedonic attribute and being able to use for a long time is the most frequently answered utilitarian attribute. Following these findings, we generated a pair of hypothetical pens. One pen has a dolphin shape and can be used only for 150 hours (hedonic pen) and the other pen has a conventional shape and can be used for 400 hours (utilitarian pen).

- *Measurement.* First, subjects were asked to choose which of the two pens they wanted to buy. We measured the percentage of the subjects who chose the hedonic pen and compared this percentage between two – hot state and cold state – conditions. Next, we checked our manipulations of visceral state and hedonic/utilitarian options. First, we asked subjects to rate their level of hunger while completing the questionnaire on a 7-point Likert scale (1 = not at all vs. 7 = very much). Second, we asked subjects to answer the following three questions, (1) how appealing pen A looks, (2) how appealing pen B looks, and (c) which shape is more appealing between pen A and pen B? They answered the first two questions on a 7-point Likert scale (1 = not at all vs. 7 = very much) and the last question by choice (A vs. B). Finally, we measured involvement and attribute importance in order to eliminate alternative hypothesis. Involvement was measured by the list of 20 characteristics (Zaichkowsky, 1985). Subjects were asked to respond to 20 iterations of the question "Do you think buying pen is __ for you?" with each the following characteristics completing the blank: (1) important, (2) of concern to me, (3) relevant, (4) personally meaningful, (5) useful, (6) valuable, (7) fundamental, (8) beneficial, (9) matters to me, (10) interesting, (11) significant, (12) vital, (13) interesting, (14) exciting, (15) appealing, (16) fascinating, (17) essential, (18) desirable, (19) wanted, (20) needed. Responses followed the aforementioned 7-point Likert scale. Attribute importance was measured by two questions, such as, whether having a pen with an appealing shape is important to them and whether using a pen for a long time is important to them. Again, subjects answered these two questions on a 7-point Likert scale (1 = not at all vs. 7 = very much).

Findings

In total, 40 undergraduate students enrolled in a business school in China participated in this study.

First, we manipulated state and hedonic/utilitarian options successfully. The subjects who answered the questionnaire late in the afternoon reported greater hunger than the subjects who answered the questionnaire immediately after lunch (M_{HOT} = 4.10 vs. M_{COLD} = 2.15, $F(1,38) = 14.69$, $p < .10$). Further, the shape of pen B was more appealing than the shape of pen A ($M_{UTILITARIN}$ = 2.53 vs. $M_{HEDONIC}$ = 5.23) and the majority of the subjects reported that pen B is more appealing in terms of shape than pen A (39 vs. 1).

As expected, we found that subjects made systematically different choices depending on their visceral state. More subjects chose the hedonic pen in the hot state than in the cold state (M_{HOT} = 40% vs. M_{COLD} = 10%, $\chi^2(1) = 4.80$, $p < .05$). Our data further suggest that subjects changed their choices neither because they became greater or less involved with the pen purchase nor because they shifted the importance of each attribute. We analyzed their answers to the 20 involvement questions and found no difference between the two conditions. We also analyzed their answers to the attribute importance questions and found no difference between two conditions either (hedonic attribute: M_{HOT} = 3.50 vs. M_{COLD} = 3.00, $F(1,38) = 0.98$, $p > .10$; utilitarian attribute: M_{HOT} = 4.70 vs. M_{COLD} = 4.70, $F(1,38) = 0$, $p > .10$). These findings support our first hypothesis that consumers are more likely to choose a hedonic product when they are in the hot state than when they are in the cold state.

Study 2

- *Objective.* In this study, we tested our second hypothesis. We manipulated the visceral state of the subjects and their temporal distance and then examined whether the effect of visceral state on their choice is influenced by temporal distance.

- *Design.* We employed a 2 (Visceral state: Hot vs. Cold) x 2 (Temporal distance: Near vs. Distant) between-subjects design. Differently from the previous study, we manipulated visceral state by showing one of the two pictures of the identical female model to our subjects. Half of the subjects were exposed to a relatively sexy picture of the female model and the other half were exposed to a relatively not-sexy picture of the same female model. The intuition behind this manipulation is that the former group of the subjects became hot state whereas the latter group of the subjects became cold state. Next, we manipulated temporal distance by asking them to make a choice in one of the two different times. The subjects in the near future condition were asked to imagine that they should make a choice tonight whereas the subjects in the distant future were asked to imagine that they make a choice in 50 days.

- *Stimuli.* We adopted a study in Dhar and Wertenbroch (2000)the authors examine how consumer choice between hedonic and utilitarian goods is influenced by the nature of the decision task. Building on research on elaboration, the authors propose that the relative salience

of hedonic dimensions is greater when consumers decide which of several items to give up (forfeiture choices and asked subjects to make a choice between two rooms. One room overlooks a breathtaking view of sunset but has a 45-minute walking distance to the work place (hedonic room) and the other room overlooks a large parking lot but has a 10-minute walking distance to the work place (utilitarian room).

- *Measurement.* We measured room choice and checked our manipulations of visceral state and temporal distance. We checked the visceral state manipulation by asking subjects to answer the two questions, (a) whether the picture they saw is hot and (b) whether the picture they saw is sexy, on a 7 point-Likert scale (1 = not at all vs. 7 = very much). We checked the temporal distance manipulation by asking them to answer whether they think the time they should wait before entering the room is short or long on a 7 point Likert-scale (1 = very short vs. 7 = very long).

Findings

In total, 80 undergraduate students enrolled in a business school in China participated in this study.

First, our manipulation of visceral state and temporal distance was successful. The subjects in the hot state answered that the picture was hotter (M_{HOT} = 4.88 vs. M_{COLD} = 2.98, $F(1,78) = 26.90$, $p < .00$) and it was sexier (M_{HOT} = 4.50 vs. M_{COLD} = 2.38, $F(1,78) = 37.60$, $p < .00$) than the subjects in the cold state. Moreover, the subjects who were asked to imagine to make a choice in 50 days indicated that the time they should wait before entering the room was significantly longer than the subjects who were asked to imagine they make a choice within a day ($M_{DISTANT}$ = 4.63 vs. M_{NEAR} = 2.50, $F(1,78) = 38.84$, $p < .00$).

As expected, we obtained evidence that temporal distance affects the relationship between visceral state and choice. When subjects were asked to choose the room that they enter in the near future, their choice depended on their visceral state. The hedonic room was chosen by half of the subjects in the hot state. However, the same room was chosen by only 15% of the subjects in the cold state (M_{HOT} = 50% vs. M_{COLD} = 15%, $\Phi^2(1) = 5.58$, $p < .05$).

Interestingly, the choice discrepancy disappeared when they make a choice in the distant future; when subjects were asked to choose the room that they enter in 50 days, the hedonic room was chosen by 55% of the subjects regardless of their visceral state (M_{HOT} = 55% vs. M_{COLD} = 55%, $\Phi^2(1) = 0.00$, $p > .10$).

In study 2, we replicated study 1 in a specific condition. We found that subjects in the hot state were more likely to choose the hedonic option only when their choice was made in the near future. When they made a choice in the distant future, however, the relationship between visceral state and choice disappeared, suggesting that temporal distance moderates the impact of visceral state on choice.

General discussion

The question of when and why people choose between a hedonic and a utilitarian option has attracted significant attention from psychologists and marketing researchers (Chitturi et al., 2007; Dhar & Wertenbroch, 2000; O'Curry & Strahilevitz, 2001; Okada, 2005; Shiv & Fedorikhin, 1999) the authors predict that contexts involving functional versus hedonic trade-offs evoke a variety of both negative and positive emotions, including guilt/anxiety, sadness/disappointment, cheerfulness/excitement, and confidence/security. These predictions are confirmed. Furthermore, an analysis of the intensities of these specific emotions reveals the following additional insights: (1. In the present work, we added visceral state to the list of contextual variables which determines hedonic/utilitarian choice and further proposed that the impact of visceral state on choice is influenced by temporal distance. To test our two hypotheses, we conducted two experimental studies. In the first study, we found that people's choice for hedonic option is greater when they are in the hot state than when they are in the cold state. We also obtained evidence that their choice was not influenced by involvement or attribute importance. In the second study, we demonstrated that the relationship between visceral state and choice was established only when the choice is made in the near future. When the choice is made for a distant future, choice is not influenced by visceral state but dominated by temporal distance.

Our findings provide interesting implications to marketers. They should utilize the commercial value of visceral state by either offering different products or positioning the identical product differently depending on the visceral state of the buyers. For example, when the potential buyers are in the hot state such as being in a rush, marketers should emphasize the hedonic aspects of the products (e.g., design of car). However, when the potential buyers are in the cold state such as being full right after having lunch, they should stress the utilitarian aspects of the products (e.g., gas mileage of car).

Although we suffer from many limitations, the most notable is that hunger and sexual drive are the only two examples of visceral state. Future research should replicate our findings and extend our theoretical framework with other visceral states such as curiosity or thirst.

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Resumen: Investigamos si el estado visceral y la distancia temporal influyen en la elección entre un producto hedónico y uno utilitario. Nuestra hipótesis es que los consumidores son más propensos a elegir un producto hedónico cuando tienen calor (por ejemplo, hambre o deseo sexual) que cuando tienen frío (por ejemplo, no tienen hambre ni deseo sexual). Además, nuestra hipótesis es que el efecto del estado visceral sobre la elección hedónica-utilitaria está moderado por la distancia temporal; la diferencia de elección entre caliente y frío desaparece cuando los consumidores realizan una elección en un futuro lejano. Nuestras dos hipótesis fueron respaldadas por dos experimentos. Se discuten las contribuciones académicas y las implicaciones gerenciales de nuestros hallazgos.

Palabras clave: Estado visceral - hedónico - utilitario - distancia temporal.

Resumo: Nós investigamos se o estado visceral e a distância temporal influenciaram sua escolha entre um produto hedônico e um produto utilitário. Hipotecamos que os consumidores são mais propensos a escolher um produto hedônico quando estão quentes (por exemplo, com fome ou movidos sexualmente) do que quando estão com frio (por exemplo, sem fome ou movidos sexualmente). Além disso, colocamos a hipótese de que o efeito do estado visceral sobre a escolha hedonista-utilitária é moderado pela distância temporal; a diferença entre escolha quente e fria desaparece quando os consumidores fazem uma escolha em um futuro distante. Nossas duas hipóteses foram suportadas por duas experiências. Discutimos as contribuições acadêmicas e as implicações gerenciais de nossas descobertas.

Palavras chave: Estado visceral - hedonístico - utilitário - distância temporal.

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