

## HEDONOMICS IN CONSUMER BEHAVIOR

Christopher K. Hsee and Claire I. Tsai

This is a rough draft; last revised March 29, 2006  
Please do not cite or circulate without authors' permission.

Chapter to appear in Curtis P. Haugtvedt, Paul M. Herr, & Frank R. Kardes (Eds.),  
*Handbook of consumer psychology*. Mahwah, NJ: Lawrence Erlbaum Associates.

Virtually all consumers want to maximize the happiness from consumption. For thousands of years, philosophers and theologians have debated how to attain joy and avoid misery. In recent decades, consumer researchers, psychologists and economists have accumulated empirical data and developed testable theories on happiness (e.g., Burroughs & Rindfleisch, 2002; Diener & Biswas-Diener, 2002; Easterlin, 2001; Frey & Stutzer, 2002a, 2002b; Kahneman, Diener & Schwarz, 1999; Kahneman & Sugden, 2005; Raghunathan & Irwin, 2001; Seligman, 2002).

There are at least two general approaches to improve consumer's happiness. One is to enhance the magnitude of desired external stimuli (e.g., amount of income, size of home, number of shoes). The other is to find the optimal relationship between external stimuli and happiness. The following analogy illustrates the distinction between these approaches. Suppose that a child loves wooden blocks and possesses some. He has played with the ones he owns for a while and is bored. How can he increase his happiness? One approach is to obtain more blocks. The other approach is to find a better way to combine the existing pieces and build more enjoyable projects.

The first approach is embraced by most consumers in our society. It seeks to earn more money and buy more desired goods. As a result of this approach, most consumers become increasingly wealthier and possess more goods now than ever before. The second approach is the focus of the present article. It seeks to optimize the relationship between external stimuli and happiness without having to increase the magnitude of the external stimuli per se. We refer to this approach as *hedonomics*, in contrast to economics. Obviously, economics is also concerned with the relationship between external stimuli, such as wealth, and subjective value or utility, and assumes that more wealth is always better but that additional wealth has less additional utility for the rich than for the poor. Hedonomics goes beyond this simple diminishing-marginal-utility notion and examines more complex relationships.

Hedonomics would not be important if either of the following assumptions were true. First, happiness depends only or primarily on the magnitude of desired external stimuli (e.g., amount of income). Second, consumers fully understand the relationships between external stimuli and happiness and in making purchase or consumption decisions they are already maximizing their happiness. Nevertheless, as our review will show,

neither of these assumptions is true. First, happiness depends not only on the magnitude of external stimuli, but also on how these stimuli are presented and evaluated, just as happiness associated with a set of wooden blocks depends not only on the quantity of blocks, but also on how these blocks are combined. Second, consumers commit systematic errors in their judgment of the relationship between external stimuli and happiness and often fail to maximize happiness, just as children do not always know how to combine the blocks they own to build the most enjoyable project,

In summary, our discussion about hedonomics revolves around two main topics: one concerning the relationship between external stimuli and happiness and the other concerning the relationship between choice and happiness. In the rest of the chapter we review existing research pertaining to these topics in turn. We wish to note that our review is illustrative rather than exhaustive and it examines primarily the behavioral decision theory literature. We focus on new developments rather than classic materials already familiar to the reader, and we focus on research that considers happiness as momentary experience with specific stimuli rather than retrospective evaluation of a past consumption experience or overall satisfaction with life (see Kahneman & Riis, 2005; Kahneman et al., 2004a; Kahneman et al., 2004b; for a discussion of these two approaches). The words ‘happiness’ and ‘experience’ will be used interchangeably throughout the article.

### External Stimuli and Happiness

In this section we review select literatures on relationships between external stimuli and experience. We examine five topics: (a) gains and losses, (b) evaluation mode and evaluability, (c) temporal factors, (d) option effect, and (e) cognition utilities.

#### Gain and losses

Kahneman and Tversky (1979)'s influential prospect theory was originally proposed to describe choice under risk. Nevertheless the theory also has important implications for consumption experience with riskless external stimuli. These implications can be briefly summarized as follows. First, one's experience with an external stimulus depends not on its absolute magnitude, but on the difference between

the absolute magnitude and some reference point. A positive difference is a gain and evokes a positive experience, whereas a negative difference is a loss and evokes a negative experience. Second, the negative experience evoked by a loss is more intense than the positive experience evoked by a gain of the same magnitude,—a principle termed loss aversion. Expressed in terms of a utility (value) function, where the x-axis denotes the external stimulus (gain or loss) and the y-axis denotes one's experience with the stimulus, loss aversion implies that the utility function is steeper in the loss domain than in the gain domain (see the solid curve in Figure 1). Finally, consumers are less sensitive to incremental changes in gains or losses as gains or losses accumulate. This principle implies that the utility function is concave on the gain side and convex on the loss side (see the solid curve in Figure 1).

Building on prospect theory and mental accounting (Thaler, 1980, 1985, 1999; Thaler & Johnson, 1990), Thaler (1985) proposed a set of happiness-maximizing strategies, which he termed “hedonic editing.”

Strategy 1: If a consumer has two good events to enjoy (e.g., dining out with a charming friend and watching a favorite video), she should enjoy them on separate occasions, because multiple gains will yield greater total happiness if they are experienced separately than if they are experienced as one aggregate gain (due to concavity of the utility function in the gain domain).

Strategy 2: If a consumer has to experience two bad events (e.g., seeing a dentist and seeing a nagging aunt), it is better to experience them in close proximity, because multiple losses will yield less total pain if they are experienced as one integrated loss than if they are experienced separately (due to convexity of the utility function in the loss domain).

Strategy 3: If a consumer has a big bad event and a small good event to experience, she should experience them separately, because the utility function in the gain domain is concave and the utility of a separate small gain can exceed the utility of a reduction from a large loss.

Strategy 4: If a consumer has a small bad event and a big good event to experience, she should experience them in close proximity, because the utility function is convex in the loss domain, losses are experienced more intensely than gains. Thus, the

negative utility of a separate small loss can exceed the negative utility of a reduction from a large gain.

Recent research has also identified important moderators for loss aversion. Novemsky and Kahneman (2005a, 2005b) propose that intentions to give up a good in exchange for another can moderate loss aversion for that good as intentions can determine the reference point against which outcomes are evaluated (Novemsky & Kahneman, 2005a). If the exchange is intended to improve the status quo, people might focus on the benefits of the good they intend to acquire instead of obsessing about the good or money they intend to give up (Ariely, Huber, & Wertenbroch, 2005; Carmon & Ariely, 2000).

The intentions account can also explain the findings that when consumers have decided to sell an item, their asking price primarily depends on market price (which is usually lower than the asking price for sellers in classic endowment effect studies; Simonson & Drolet, 2004). Thus, consumers might be able to reduce anticipated negative experiences associated with losses if they focus on the benefits of the exchange.

Another plausible moderator of loss aversion is emotional attachment (Ariely et al., 2005; Ariely & Simonson, 2003; Carmon, Wertenbroch, & Zeelenberg, 2003; Strahilevitz & Loewenstein, 1998). Ariely and his colleagues (2005) propose that consumers become more reluctant to give up items increases as they anticipate negative utility associated with losses to increase. On the other hand, Novemsky and Kahneman (2005b) suggest that intentions can help break emotional attachment and reduce the discomfort of giving up items.

The emotional attachment account can explain the results in Dhar and Wertenbroch (2000). They show that consumers are less willing to give up hedonic than utilitarian items. The findings suggest that the intentions can more effectively reduce the loss associated with utilitarian items than hedonic items and perhaps the intentions to exchange are not sufficient to offset consumers' emotional attachment for hedonic items. On a related note, ambiguity of status quo might also reduce loss aversion given that the reference point is not as rigid and thus consumers are not as attached to such status quo.

## Evaluation Mode and Evaluability

Most utility theories, including prospect theory, assume that more of a desired stimulus is always better. For example, an airline passenger will always be happier if she receives 3000 bonus miles than if she receives 2000 bonus miles. Is this assumption true? Recent research (Hsee & Zhang, 2004; Hsee et al., 1999; Hsee, 1996) suggests that whether consumers are sensitive to the magnitude (amount, quantity, duration, probability, etc.) number of miles) associated with a stimulus depends on at least two factors, evaluation mode and the evaluability of the relevant attribute.

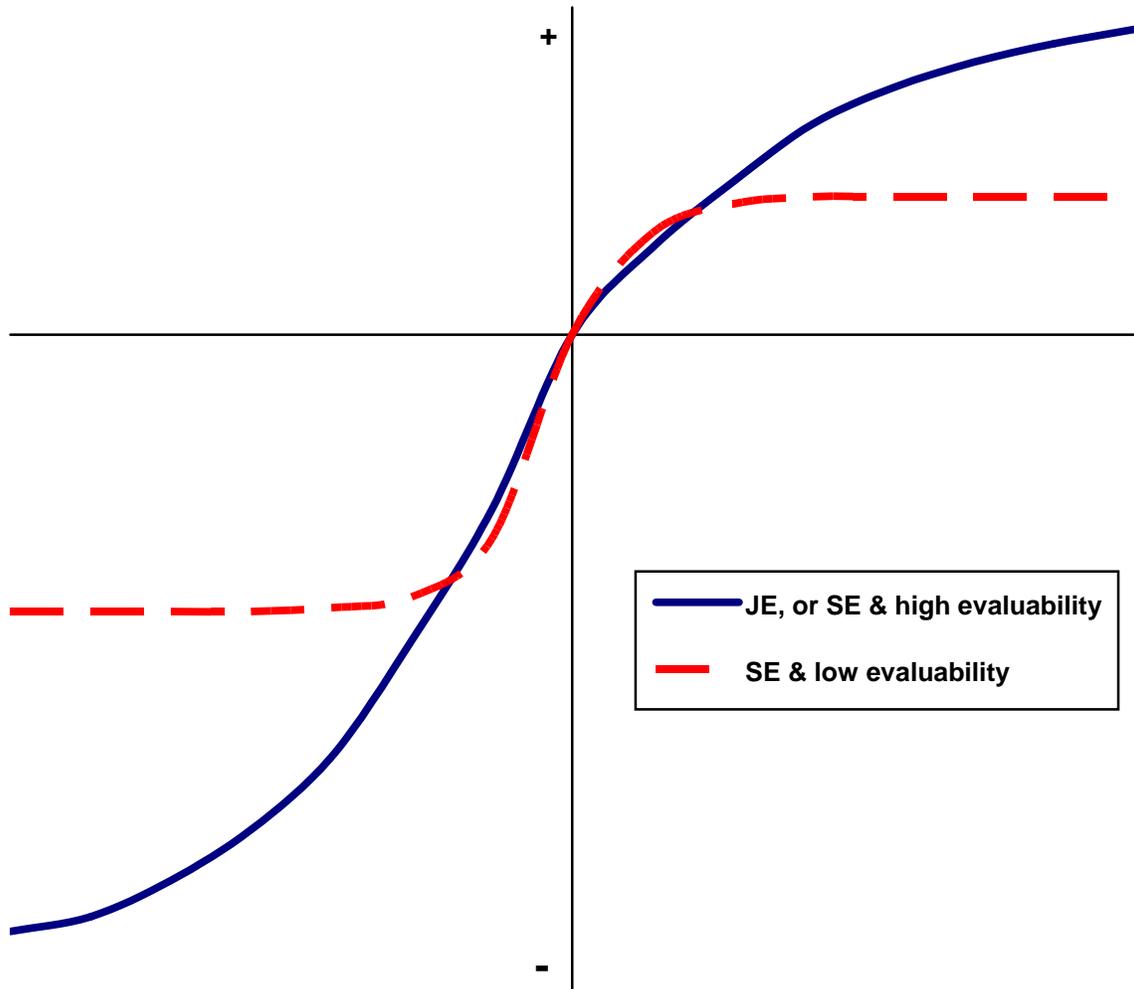
What is evaluation mode? The evaluation of any stimuli proceeds in one or some combination of two modes: joint evaluation (JE) and single evaluation (SE). In JE, two or more stimuli are juxtaposed and evaluated comparatively. For example, if a passenger receives two sets of bonus miles from two airlines, she is in JE of these two sets of bonuses. Under SE, only one stimulus is present and evaluated in isolation, for example, a passenger receives only one set of bonus miles at a time.

Evaluation mode, JE or SE, can affect the utility function of the relevant attribute. Under JE, the utility function is relatively linear and steep, as depicted by the solid curve in Figure 1. In this case, consumers can directly compare different values on the attribute. As long as they know which direction is better, they will feel happier with the more desirable value.

In SE, however, the shape of the utility function will depend on another factor—evaluability. The evaluability of an attribute refers to the extent to which consumers can evaluate the desirability of any value on the attribute when the value is presented alone. The same attribute can be evaluable for one consumer but inevaluable for another. The more familiar a consumer is with the attribute in terms of its range, distribution and other reference information, the more evaluable the attribute is to that consumer.

When evaluability is low, the utility function in SE will resemble a step function, steep around zero (or the neutral reference point) and flat elsewhere, as illustrated by dashed curve in Figure 1. For example, the number of bonus miles is a low-evaluability attribute for people who rarely receive bonus miles and do not know the range and distribution of such bonuses. They will be happy if they receive any, but will be relatively insensitive to how much they receive.

When evaluability is high, the utility function in SE will resemble the more linear JE function (the solid curve in Figure 1). For example, the number of bonus miles is a high-evaluability attribute for passengers who often receive such miles and know their range and distribution. They will be happier the more miles they receive.



To recapitulate, in JE the utility function is relatively linear regardless of evaluability. In SE, the shape of the utility function depends on the evaluability of the attribute. The less evaluable the attribute, the more the utility function resembles a step function. For recent studies on evaluability and related topics, see Hsee, Rottenstreich & Xiao, 2005; Kunreuther, Novemsky & Kahneman, 2001; Posavac et al., 2004, 2005; Yeung & Soman, 2005.

Life often presents itself in SE. For example, most passengers do not receive multiple sets of bonus miles at the same time. Furthermore, consumers do not have much information about the range and distribution of most product attributes. Thus, more of a good thing does not necessarily make consumers happier.

The analysis in this section provides a novel explanation for three common findings from the happiness literature. First, across generations where real income increases, people's happiness does not increase (e.g., Campbell, 1981; Diener, & Biswas-Diener, 2002). This finding is often attributed to hedonic adaptation, as we will review later. However, the phenomenon may arise simply because cross-generation comparison is a matter of SE, and absolute wealth is difficult to evaluate independently. As illustrated previously, passengers receiving 3000 bonus miles are not going to be happier than passengers receiving 2000 bonus miles if they do not compare the awards and if they are not familiar with the distribution or range of such promotions. Similarly, people in the 80s with an annual income of \$30,000 probably did not feel happier than people in the 60s with an annual income of \$20,000. It may not have anything to do with hedonic adaptation or treadmill effects. (Although people in the 80s may occasionally compare their wealth with that of their previous generations, so would people in the 60s. Because each generation is wealthier than their previous generation, such comparisons would make both generations happy but not make them differentially happy).

Second, across income levels within a society at a given time, the wealthy are happier than the poor, although the correlation between wealth and happiness is not strong (e.g., Diener & Biswas-Diener, 2002; Frey & Stutzer, 2002a; Easterlin, 2001). Why? That may arise because within a society, people may sometimes, though not always, engage in JE, and therefore there is some, but not strong, correlation. Advertisements, "status exhibitions," rob people's noses in JE; differences in products, life style, remind everyone how relatively low they are (e.g., Frank, 2000; Frank & Cook, 1996).

Finally, people almost always prefer more money and believe they would be happier with greater amount of wealth (Campbell, 1981). That is because such preferences and beliefs are usually elicited in JE (comparing more wealth with less), and in JE the utility function is linear.

## Temporal Factors

Many things consumers care about change over time. If a stimulus one cares about changes, for example, moving from a small apartment to larger unit, one will first experience a positive feeling and with the passage of time the elevated feeling will fade away. This is hedonic adaptation.

A landmark study by Brickman, Coates and Janoff-Bulman (1978) suggests that people may even adapt to extreme changes in life such as permanent loss of limbs in a car accident and winning large sums of money from a state lottery (see similar results by Schulz & Decker, 1985). For more recent work on hedonic adaptation, see research on marriage by Lucas et al. (2003) and on health by Riis et al. (2005).

Hedonic adaptation occurs for multiple reasons. One is basic psychophysical adaptation (Helson, 1964): the longer we are exposed to a stimulus, the less sensitive we feel about it. For example, when a person first immerses her hand in 50 degree water, she will feel cold. After a while she will adapt to the temperature and no longer find the water cold. Another reason for hedonic adaptation is dilution of attention. For example, after a person moves to large apartment from a smaller place, she will first be overjoyed with the extra size, but before long, her attention will shift away from the house to many other things, such as her crying baby and her nagging husband. As a result, the size of her new apartment is just one of the myriads of events that cause the ups and downs of her life. A third reason for hedonic adaptation is what Wilson, Meyers and Gilbert (2003) refer to as "ordinization." Once an affective event happens, consumers have a tendency to rationalize it, make it seem ordinary, and thereby dampen its affective impact. This can happen to both positive and negative events. For example, if a bidder won an auction for a painting on eBay, he might think to himself, "It's no surprise. I bid a lot." If he was outbid, he might justify the loss by thinking, "It was not a very good painting anyway."

Hedonic adaptation occurs mostly when the new state remains stable, for example, when a person remains in the new apartment after moving or a person remains paralyzed after an accident. However, many events we care about constantly change over time, for example, gas price, stock price, body weight. How do people react to such ongoing changes?

First, our momentary experience with such ongoing changes depends on the direction of the change, positive if the change is in the desirable direction and negative if the change is in the unwanted direction (e.g., Ariely & Zauberman, 2003; Diehl & Zauberman, 2005; Loewenstein & Prelec, 1993). Moreover, our momentary experience also depends on the rate of change, or velocity (Hsee & Abelson, 1991) in that we feel happier the faster a positive change, and feel less unhappy the slower a negative change. The velocity notion has received support from both lab experiments (e.g., Baumgartner, Sujan, & Padgett, 1997; Hsee & Abelson 1991) and field data (e.g., Clark, 1999). Finally, our momentary experience with an ongoing change may also depend on changes in velocity (Hsee, Salovey & Abelson, 1994). In sum, consumers adapt to states but react to changes. They react more the faster the change, and they react not only to the rate of change, but also to changes in the rate.

Another factor that influences consumers' experience with a series of events over time is the distribution of the events. The distribution can be positively skewed, or negatively skewed. For example, suppose the quality of wines is proportional to their prices and there are two consumers. One drinks a \$15 wine on most days and drinks a \$30 wine occasionally, whereas the other drinks a \$25 wine on most days and drinks a \$10 wine occasionally. The average cost of the wines is \$20 for both individuals. Here, the former situation is an example of a positively skewed distribution, and the latter an example of a negatively skewed distribution. Decades of research by Parducci and his coauthors (Parducci, 1965, 1995; Wedell & Parducci, 1988) suggests that the negatively-skewed distribution case creates a better consumption experience overall than the positively-skewed distribution case, because in the negative skewness condition the infrequent experiences of the \$10 wine enhance his more frequent experiences of the \$25 wine, whereas in the positive skewness condition the infrequent experiences of the \$30 wine hurts his more frequent experiences of the \$15 wine. The moral of this body of research is that consumers should arrange their consumption experiences in a negatively skewed distribution to maximize happiness. (See Zhang & Hsee, 2006 for a different view on this topic.)

## Option Effect

Many believe that having a choice is always better than having none, and having more choices is always better than having fewer. In reality, neither of these beliefs is true (Schwartz, 2004). Research by Botti and Iyengar (2004) shows that if consumers have to experience one of several undesirable options, they will feel less unhappy if someone else makes the choice for them than if they have to make the choice themselves. For example a consumer who is on diet and can only eat meals that are unappealing to her would feel better if someone else chooses the meal for her than if she has to make a choice herself, because making a choice among unappealing meals induces negative feelings.

Furthermore, research by Iyengar and Lepper (2000) shows that if people make the choice themselves, they will be less satisfied with their choice if they have many options to choose from than if they have only a few options to choose from. Too many options can be demotivating because they are too complex and involve too many tradeoffs for consumers to manage. For example, shoppers were less happy with the chocolate they chose if they had 30 truffles to choose from than if they had only 6 options.

Research by Hsee and Leclerc (1998) shows that if consumers are presented with one good option, they will be happy, but if they are presented with two good options they will notice the disadvantages of each option relative to the other and will be less happy with either option. For example, if one wins a free trip to Paris, he will be happy; if one wins a free trip to Hawaii, he will be happy. But if one wins a free trip and has to choose between Paris and Hawaii, he may be less happy, because each option contains shortcomings compared with the other: Paris does not have Waikiki Beach, and Hawaii does not have Louver.

Finally, research by Carmon et al. (2003) shows that consumers will be less happy with the choice they make if they closely consider the options available to them than if they do not. In most cases a consumer can choose only one of the available options and has to forego the other options. Close deliberations can prompt consumers to form an emotional attachment to all the options, including those they have to forego. Thus, choosing one feels like losing the others to which they already have emotional attachment.

## Cognition Utilities

Imagine that a person participated in a sweepstakes a month ago. She was just informed that she had won a 3-day vacation in Paris. What is the utility of this trip to her? Intuitively, one would say that the utility is the happiness she derives from the vacation. That can be referred to as *consumption utility*. But besides that, she experiences three other types of utilities: news utility – the feeling she experiences upon hearing the news that she won the vacation, anticipation utility – the feeling she experiences when anticipating for the trip, and memory utility – the feeling she experiences when recalling the trip after the trip.

In a recent pilot study on news utility, students were prompted to report their momentary experiences five times during a class (Hsee, 2005). The first time was about 15 minutes into the class without any particular events (which established the baseline of happiness). The second time was immediately after the instructor announced that he would give each student a KitKat to eat later in the class; it measured news utility. The third time was about 10 minutes after the announcement of the news; it measured anticipation utility. The fourth time was right after the students had received the chocolate and were eating it; it measured consumption utility. The last time was some 10 minutes after the consumption; it measured memory utility. Compared with the baseline, the students reported the greatest happiness when they heard the news, followed by when they ate the chocolate, and lastly when they anticipated and recalled the consumption. We want to highlight two implications of the study. First, it shows the existence of news utility, besides consumption, anticipation, and memory utilities. Second, it shows the possibility for news to generate even greater happiness than consumption.

Compared with news utility, anticipation utility has been well documented in the literature (e.g., Bentham, 1789; Loewenstein, 1987; O'Curry & Strahilevitz, 2001; Prelec & Loewenstein, 1998; Shiv & Huber, 2000). In an ingenious study on anticipated utility (Loewenstein, 1987), respondents were asked to indicate how much they were willing to pay for receiving a kiss from their favorite movie star immediately, in three hours, or in three days. According to traditional discounted utility theory, people should be willing to pay more for the immediate kiss than for the delayed kisses, because experiences in the

future are discounted and their appeal diminish. However, Loewenstein found that respondents were willing to pay more for receiving the kiss in three days than receiving it immediately or in three hours. Presumably, waiting for the kiss brings happiness.

Waiting, however, can also cause negative emotions such as anxiety and stress. The net effect of the anticipated pleasure and frustrations of waiting depends on the familiarity with the consumption event and the vividness of the imagined consumption experience (Nowlis, Mandel, & McCabe, 2004). If a consumer has never visited a restaurant, she will experience less anticipated pleasure than one who has been or who actually sits in the restaurant and waits for her dinner to be served while watching other patrons enjoy their meal.

Memory utility is another important cognition utility. Memory of past events can influence happiness in two ways (Elster & Loewenstein, 1992). First, consumers may relive a positive (versus negative) experience from their past and derive positive (versus negative) utility when recalling the past (consumption effect). For example, a person can derive pleasure by recalling the details about her last trip to Paris. Second, past experience can create a contrast effect or an assimilation effect on one's current experience. It is context-dependent which effect will dominate (Tversky & Griffin, 1990). If the past event is similar to the current event (e.g., a fancy French dinner versus a mediocre French dinner), the past experience will create a contrast effect. If the past event is dissimilar to the present event (e.g., a fancy French dinner versus a mediocre movie), it will create an assimilation effect.

Intuitively, the primary source of happiness a desirable stimulus (e.g., a chocolate or a vacation) brings is the consumption of the stimulus, whereas news, anticipation and memory are all secondary. In reality, cognition utilities may comprise a large portion of the happiness from the stimulus, and sometimes even larger than what consumption produces. This is especially true if one integrates these cognition utilities over time and compares the sum (temporal integral) with the sum (temporal integral) of the consumption utility. For example, the sum of the temporally-integrated happiness from hearing the news that one has won a free 3-day trip to Paris, from anticipating the visit and from recalling the visit for the rest of one's life may well exceed the temporally-integrated happiness from the 3-day trip per se. What our Kitkat example shows is that

sometimes even momentary (not-integrated) news utility may exceed momentary consumption utility.

Consumption utility is like a light source, and cognition utility is like its halo. Without the light source, there will be no halo. But with the light source, the halo may be brighter than the source itself.

## Summary

To build a good wooden block project, it requires sufficient blocks. But simply adding blocks is not sufficient; it also requires proper combinations. Similarly, to create happiness, it requires sufficient wealth. But simply increasing wealth is not sufficient; it also requires an understanding of the relationships between wealth and happiness. The literatures we just reviewed are about these relationships.

## Decision and Happiness

The first part of this chapter reviews selected literatures on the relationships between external stimuli and happiness. The second part of this chapter reviews literatures on the ability of consumers to understand such relationships and make choices that maximize happiness.

Decades of behavioral decision research suggests that consumers often fail to maximize happiness. This failure can be attributed to one of two general reasons (Kahneman, 1994). First, consumers fail to accurately predict which option will bring them the best experience. Second, even if they could make accurate predictions, consumers may fail to base their choices on such predictions. In this section, we review eight specific reasons why consumers fail to maximize happiness: The first four are related to failure to make accurate predictions and the last four are related to failure to follow predictions about consumption experience.

## Impact Bias

When asked to predict the experiential consequence of an event (e.g., moving to a larger apartment), consumers often ignore the power of adaptation and thereby overpredict the duration and the intensity of the experience (Buehler & McFarland, 2001;

Wilson et al., 2000). Gilbert, Driver-Linn, and Wilson (2002) refer to this type of misprediction as impact bias (see also Wilson & Gilbert, 2003).

Impact bias can be attributed to two reasons. One is neglect of ordinization. As we reviewed earlier, when an emotion-triggering event happens, people will make sense of it and make the event seem ordinary (Wilson et al., 2003). Yet most people underestimate this ordinization effect.

Another reason for impact bias is focalism, that is, consumers pay too much attention to the focal event, overlook the dilution-of-attention effect (as we reviewed earlier), and thereby overestimate the affective impact of the focal event (e.g., Buehler & McFarland, 2001; Schkade & Kahneman, 1998; Wilson et al., 2000). For example, when predicting how much happier one will be if she moves from a smaller apartment to a larger one, she focuses her attention on the size dimension, but once she moves to the larger apartment, size is just one of many things that affect her life.

### Distinction Bias

A recent graduate who currently lives in a 500-square-foot studio without indoor parking has found a job and has two options for housing, one a 1200-square-foot apartment with indoor parking and the other a 1600-square-foot apartment without indoor parking (rent is the same for both options). In comparison he notices the clear difference in size between the two options and predicts himself to be happier by living in the bigger apartment despite the lack of indoor parking so he chooses the bigger place. Is his choice the optimal decision? Probably not. In reality, he may well be happier if he rents the smaller apartment, because the difference between 1200 and 1600 square feet may make less of a difference in his consumption (living) experience than the difference between having and having no indoor parking. As the example illustrates, when making a choice, the person overpredicts the difference in experience generated by two apparently distinct values on a particular dimension (in this case square footage). We refer to this prediction bias as the distinction bias.

The distinction bias arises because consumers are in different evaluation modes during prediction versus consumption. Predictions are often made in JE, and consumption often takes place in SE (Hsee & Zhang, 2004). For instance, prospective house buyers

typically compare alternative homes in JE and predict their experiences. When they actually live in a home, they experience that place alone in SE. (Although people may occasionally think of the foregone alternatives, their predominant mode of evaluation during consumption is still SE.)

As we reviewed in the first part of this article, one's utility function of an attribute differs between JE and SE. In JE, the utility function is relatively linear and steep. In SE, the utility function is steep around the neutral reference point and flat elsewhere, and this tendency is more pronounced the less evaluable the attribute is (the dashed curve in Figure 1). Thus, during predictions consumers will generally follow the JE utility function (the solid curve in Figure 1) and be sensitive to variables in any part of the attribute range. But during consumption, consumers will follow the SE function (see Figure 1) and be sensitive to variations near zero (or the neutral reference point) on the attribute.

The analysis above leads to a simple theory about when consumers overpredict and when they don't. If two options differ near zero (or the neutral reference point) on the relevant attribute, they will not overpredict. If two options differ farther on the attribute, they will overpredict. For example, suppose that the person mentioned above uses his current apartment size—500 square feet—as his neutral reference point. Then he will be relatively accurate when predicting the difference in happiness between living in a 600-square-foot apartment and a 1000-square-foot apartment, but less accurate when predicting the difference in happiness between living in a 1200-square-foot apartment and living in a 1600-square-foot apartment. In addition, he will be relatively accurate in predicting the difference in happiness between having no indoor parking (the status quo, which is usually one's reference point) and having an indoor parking. If consumers do not realize the distinction bias, they may sacrifice things that are actually important to their consumption experience (e.g., the availability of indoor parking) for things that are not (e.g., the difference between 1200 and 1600 square feet).

### Belief Bias

Mispredictions about consumption experience may also result from consumers' inaccurate lay theories concerning relationships between external stimuli and happiness

(e.g., Kahneman & Snell, 1992; Novemsky & Ratner, 2003; Robinson & Clore, 2002; Snell, Gibbs & Varey, 1995). Consumers may expect adaptation or satiation when it does not exist (e.g., Brickman, Coates, & Janoff-Bulman, 1978; Frederick & Loewenstein, 1999; Kahneman, 2000; Loewenstein & Schkade, 1999). For example, students believed that their liking for their favorite ice cream would decrease if they had it every day, but in reality their liking did not decrease as much as predicted (Kahneman & Snell, 1992).

Consumers may also overpredict contrast effect. For example, students believed that eating a tasty jellybean would reduce the enjoyment of a not-so-tasty jellybean. In fact, such contrast effects did not occur (Novemsky & Ratner, 2003). Consumers may also hold beliefs inconsistent with hedonic editing. As we reviewed earlier, the diminishing-marginal-sensitivity notion suggests that people who have to experience multiple bad outcomes should experience them on one occasion, but most people prefer to experience them on separate occasions, because they believe that one bad outcome will make them more sensitive to another bad outcome if they are encountered together (Thaler, 1999).

Another common belief is that more options are always better. As we reviewed earlier this belief is not true. Whether more options are better depends on the size of the choice set (Iyengar & Lepper, 2000), the mode of evaluation (Hsee & Leclerc, 1998), and the level of involvement (Carmon et al., 2003). A related common belief is that having the right to choose makes people happier than having someone else make the choice for them. Again, as we discussed earlier, this belief is not true for choosing among undesirable alternatives (Botti & Iyengar, 2004).

### Projection Bias

Consumers often find themselves in different visceral (arousal) states (Loewenstein, 1996). Sometimes they are rested, satiated or sexually unaroused; other times they are tired, hungry, or aroused. When consumers in one visceral state predicts the experiences in another visceral state for themselves or others, they often commit a systematic error by projecting their current state into their predictions (Loewenstein, O'Donoghue, & Rabin, 2003; see also Loewenstein, 1996; Van Boven, Dunning, & Loewenstein, 2000; Van Boven & Loewenstein, 2003). For example, if a person is full

now, she will underestimate how much she will enjoy her next meal when she is hungry again.

Projection bias can render important behavioral consequences. For example, hungry shoppers at a grocery store may buy more items than they need (Nisbett & Kanouse, 1969) and have planned to buy, unless they are reminded of their grocery list (Gilbert, Gill, & Wilson, 2002). A currently hungry person may choose a candy car bar over an apple for a future consumption occasion on which she will be full, only to find that she actually prefers apple when that moment comes (e.g., Read & van Leeuwen, 1998).

### Rule-based Choice

To choose the experientially optimal option, consumers not only need to accurately predict their future experience, but also need to base their choice on predicted experience. We have already discussed when consumers fail to accurately predict their future experiences. We will now discuss when they fail to follow predicted experience. In decision-making consumers may base their choice on many other factors than predicted experience.

One such factor is decision rules (e.g., Prelec & Herrnstein, 1991; March, 1994; Simonson, 1989; Simonson & Nowlis, 2000). Decision rules come into being because they simplify decisions and they lead to optimal consequences under certain circumstances. Nevertheless, once these rules are internalized, people over-apply these rules to circumstances that these rules do not lead to experientially optimal choices.

Examples of such decision rules include "seek variety or diversification" (e.g., Fox, Ratner, & Lieb, 2005; Simonson, 1990; Benartzi & Thaler, 2001; Ratner, Kahn, & Kahneman, 1999), "waste not" (e.g., Arkes & Ayton, 1999; Arkes & Blumer, 1985), "don't pay for delays" (Amir & Ariely, in press), to name just a few.

For example, consumers may intuitively recognize the importance of anticipation utility and predict greater happiness from a concert that will take place in a week than a similar concert that will take place tonight, yet they are not willing to pay extra for the concert in a week, presumably because they want to adhere to the "don't pay for delays" rule (Amir & Ariely, in press).

Variety-seeking can also lead to an inconsistency between predicted experience and decision. In one of the original studies on variety-seeking, Simonson (1990) asked one group of students to make simultaneous choices of candies for future consumption occasions, and another group of students to make sequential choices of candies right before each consumption occasion. Most simultaneous choosers asked for a variety of snacks, but most sequential choosers asked only for their favorite snack repeatedly. What is more interesting about this study is that in a third group participants were in the same position as the simultaneous choosers and were asked to predict their future consumption experiences. They predicted better feelings with low variety than with high variety. This suggests that the simultaneous choosers were able to predict, if asked, that low variety would yield better experience, yet the rule of variety-seeking prevailed.

In another study on variety-seeking, Ratner and her coauthors (1999) asked participants to construct a song-sequence from one of two sets of songs. One set contains more songs than the other, but the additional songs were less enjoyable. They found that those who were given the larger set constructed sequences with greater variety but enjoyed them less. In a study on variety-seeking in a group context, Ariely and Levav (2000) found that diners tend to order different items than what their friends choose even though they will enjoy the items less.

Similarly, the “waste not” rule can also lead consumers to forego options that they predict more enjoyable and choose the less enjoyable one. Arkes and Blumer (1985) asked participants to imagine that they had purchased a \$100 ticket for a weekend ski trip to Michigan and a \$50 ticket for a weekend ski trip to Wisconsin. They later found out that the two trips were for the same weekend and had to pick one to use. Although the participants were told that the trip to Wisconsin was more enjoyable, the majority of them chose the more expensive trip to Michigan.

### Lay Rationalism

Besides the specific rules we discussed above, consumers have a general tendency to resist immediate affective influence and base their choice on factors they consider ‘rational’ (e.g., Hsee, 1999; Okada, 2005, Shafir, Simonson, & Tversky, 1993). This tendency is termed *lay rationalism* in Hsee et al. (2003b). Lay rationalism manifests itself

in different forms. One is *lay economism*—the tendency to base decision on the financial aspects of the options and ignore other happiness-relevant factors. In a study by Hsee et al. (2003b), participants were given a choice between two sets of free dinners, four in each set. The dinners were to be consumed in the following four weeks. In one set, the dinners increased in value (original price) over the 4-week period and the total value was relatively lower. In the other set, the dinners decreased in value over the period and the total value was relatively higher. Participants predicted greater enjoyment from consuming the temporally-increasing set of dinners, yet they chose to the set with the greater total value.

Another manifestation of lay rationalism is *lay scientism*, a tendency to base decision on "hard" (objective and quantitative) attributes rather than "soft" (subjective and hard-to-quantify) attributes. In a study testing for lay scientism (Hsee et al., 2003b), participants were given a choice between two fictitious stereo systems, one having more power and the other having a richer sound. For half of the participants, power was described as an objective wattage rating and sound richness as a subjective experience. For the other half, power was described as a subjective experience and sound richness as an objective quantitative rating. When power was framed as objective more participants chose the more-powerful stereo than they predicted they would enjoy it more. When sound richness was framed as objective more participants chose the richer-sounding stereo than they predicted they would enjoy it more. In other words, the objectivity/subjectivity manipulation had a greater influence on choice than on predicted experience. This finding corroborates the notion that consumers base their choice not purely on predicted experience, but also on what they consider "rational," in this case, objective.

### Impulsivity

We define an impulsive choice as choosing an option that yields a better short-term (immediate) experience over an option that yields a better long-term (immediate plus future) experience. For example, eating fatty food may produce better short-term enjoyment than eating healthy food, but it may cause obesity and other health-related

problems in the long run. Thus, eating fatty food rather than healthy food can be considered an impulsive choice.

Consumers sometimes behave impulsively because they miscalculate its consequences. For example, some people eat fatty foods, because they underpredict the negative consequences in the future. But more often than not, consumers commit impulsive behavior even though they are keenly aware of its aversive consequence, and they simply cannot resist the temptation (e.g., Kivetz & Simonson, 2002b; Loewenstein, 1996; Thaler & Shefrin, 1981). For example, many substance abusers are fully aware that drugs are ruining their lives and may even warn their friends to stay away from drugs, but they simply cannot resist the craving. In other words, impulsive choosers fail to base their choice on what they predict will bring them the best overall experience. Here, overall experience refers to long-term or overall experience, i.e., the sum of immediate and future experiences.

Impulsive behavior is an extensively studied topic (e.g., Ainslie, 2001; Ariely & Wertenbroch, 2002; Baumeister & Heatherton, 1996; Baumeister & Vohs, 2004; Cheema & Soman, 2006; Kardes, Cronley & Kim, 2006; Kivetz & Simonson, 2002a ; Prelec & Herrnstein, 1991; Schelling, 1980, 1984; Thaler, 1980; Thaler & Shefrin, 1981; Trope & Liberman, 2003), and it is beyond the scope of this article to review this rich literature. However, we want to suggest a relationship between impulsive behavior and rule-based decisions.

So far we have reviewed impulsivity and rules-based-decisions as two unrelated topics. Yet they are inherently related. Most decision rules are antidotes to impulsivity and are self-control mechanisms. For example, consumers adopting the “waste not” rule may consciously or unconsciously want to preserve their savings so as not to suffer financially in the long run. In some cases, not wasting now can indeed serve that purpose and sometimes it cannot. The problem is that most consumers do not sufficiently distinguish these two types of cases and act too impulsively in the first case but overly apply the rule in the second.

For example, consider a student who plans to travel in Europe for one week. She can travel within Europe either by train or by air. She thought traveling by air is more fun so she paid \$1000 for a one-week air pass in Europe. Once in Europe she realizes that

traveling by train is more fun. She does not have much savings; if she spends more on the trip she would not have money to go to school next semester. Consider two alternative scenarios. In Scenario 1 she does not have a train pass and to travel by train she has to pay extra. In Scenario 2 she has a free train pass from a friend. Normatively, she should travel by air in Scenario 1 and by train in Scenario 2. In reality she may not do differently in these scenarios; she may travel partially by train and partially by air in both scenarios. In Scenario 1 she travels partially by train because she wants to enjoy the train ride now even though doing so will deplete her savings for college and potentially lower her long-term well-being, and this behavior can be considered impulsive. In Scenario 2 she travels partially by air because she does not want to waste the \$1000 air pass she already paid for and this behavior is an example of sunk cost fallacy, which is an over-application of the ‘waste not’ rule. This example illustrates that the same behavior, namely, traveling partially by train and partially by air, can be considered as either too impulsive or too rule-abiding, depending on the situation.

### Medium Maximization

When people exert effort to obtain a desired outcome, the immediate reward they receive is usually not the outcome per se, but a medium—an instrument that they can trade for the desired outcome (e.g., Kivetz & Simonson, 2002a; van Osselaer, Alba, & Manchanda, 2004). For example, points for consumer loyalty programs and mileage for frequent flyer programs are both media.

In decisions involving a medium, consumers may maximize the medium rather than their predicted experiences with the ultimate outcomes (Hsee et al., 2003a). In an experiment designed to test the effect of media, respondents were given a choice between a shorter task which would award them 60 points or a larger task which would award them 100 points. Respondents were told that with 60 points they could get a serving of vanilla ice cream and with 100 points they could get the same amount of pistachio ice cream. Most respondents chose to work on the long task. However, when asked which type of ice cream they preferred or which type of task they preferred, most favored the vanilla ice cream and short task. It seems that the presence of a medium led the respondents to work more and enjoy less.

Normatively, when people exert effort to achieve a certain final outcome, they should ignore media and choose the option that yields the best consumption experience for every unit of effort they pay. In reality, people often choose the option that yields the greatest amount of media for every unit of effort they pay. According to Hsee et al. (2003a), people pursue media, because the media provide an illusion of certainty, an illusion of advantage or an illusion of a simple linear relationship between effort and reward.

Research on medium maximization has implications not only for consumer behavior, but for life in general. Besides survival, the ultimate objective of working is happiness. Yet when people work, the immediate reward is not happiness, but a medium, money. Instead of maximizing the work-to-happiness return, many people simply maximize the work-to-dollar return.

Decision rules, lay rationalism, impulses and media are only four examples of factors that can lead consumers to choose a different option than what has the best predicted future experience. Other than these factors, consumers may also base their choice on their gut feelings toward the options they face (e.g., Slovic et al., 2002), or on the inferences they make from their feelings (e.g., Pham, 2004). Like the other factors, gut feelings and feeling-inferred cognitions may differ from predicted future experience and may lead to experientially suboptimal choices.

## Summary

To create a good wooden-block project, the child needs to accurately predict what a project will look like if he combines the blocks in a particular way, and combine the blocks based on his predictions. Likewise, to pursue happiness, consumers need to accurately predict the affective consequences of their options and make their choices based on their predictions. The literatures we just reviewed examine when and why consumers fail to make accurate affective predicts or when and why they fail to act upon their predictions.

## Conclusion

Hedonomics challenges two commonly-held, often tacit assumptions in traditional economics -- (a) that maximizing desired external stimuli (including goods and services) approximates maximizing consumer happiness and (b) that what consumers choose reflects what makes them happy. Correspondingly, hedonomics studies two topics--(a) how external stimuli actually affect consumers' happiness and (b) why and when consumers fail to maximize their happiness. A better understanding of these topics can help consumers increase their own happiness without paying more money and help companies increase consumers' happiness without expending more resources.

## References

- Ainslie, G. (2001). Breakdown of Will. New York: Cambridge University Press.
- Amir, O., & Ariely, D. (forthcoming). Decisions by Rules: The Case of Unwillingness to Pay for Beneficial Delays. Journal of Marketing Research.
- Ariely, D., Huber, J., & Wertenbroch, K. (2005). When do losses loom larger than gains? Journal of Marketing Research, 42, 134-138.
- Ariely, D., & Levav, J. (2000). Sequential choice in group settings: Taking the road less traveled and less enjoyed. Journal of Consumer Research, 27, 279-290.
- Ariely, D., & Simonson, I. (2003). Buying, bidding, playing, or competing? Value assessment and decision dynamics in online auctions. Journal of Consumer Psychology, 13, 113-123.
- Ariely, D., & Wertenbroch, K. (2002). Procrastination, deadlines, and performance: Self-control by precommitment. Psychological Science, 13, 219-224.
- Ariely, D., & Zauberman, G. (2003). Differential partitioning of extended experiences. Organizational Behavior and Human Decision Processes, 91, 128-139.
- Arkes, H. R., & Ayton, P. (1999). The sunk cost and Concorde effects: Are humans less rational than lower animals? Psychological Bulletin, 125, 591-600.
- Arkes, H. R., & Blumer, C. (1985). The psychology of sunk cost. Organizational Behavior and Human Decision Processes, 35, 124-140.
- Baumgartner, H., Sujan, M., & Padgett (1997). Patterns of affective reactions to advertisements: The integration of moment-to-moment responses. Journal of Marketing Research, 34, 219-232.
- Baumeister, R. F., & Heatherton, T. F. (1996). Self-regulation failure: An overview. Psychological Inquiry, 1, 1-15.
- Baumeister, R. F., & Vohs, K. D (Eds). (2004). Handbook of self-regulation: Research, theory and applications. New York: Guilford Press.
- Benartzi, S., & Thaler, R.H. (2001). Naïve diversification strategies in defined contribution savings plans. American Economic Review, 91, 79-98.
- Bentham, J. (1789; reprinted 1948). An Introduction to the Principles of Morals and Legislations. Oxford, England: Blackwell.

- Botti, S. & Iyengar, S. S. (2004). The Psychological Pleasure and Pain of Choosing: When People Prefer Choosing at the Cost of Subsequent Outcome Satisfaction. Journal of Personality and Social Psychology, 87, 312-326.
- Brickman, P., Coates, D., & Janoff-Bulman, R. (1978). Lottery winners and accident victims: Is happiness relative? Journal of Personality and Social Psychology, 36, 917-927.
- Buehler, R., & McFarland, C. (2001). Intensity bias in affective forecasting: The role of temporal focus. Personality and Social Psychology Bulletin, 27, 1480-1493.
- Burroughs, J. E., & Rindfleisch, A. (2002). Materialism and well-being: A conflicting values perspective. Journal of Consumer Research, 29, 348-370.
- Campbell, A. (1981). The Sense of Well-Being in America. New York: McGraw-Hill.
- Carmon, Z., & Ariely, D. (2000). Focusing on the forgone: How value can appear so different to buyers and sellers. Journal of Consumer Research, 27, 360-370.
- Carmon, Z., Wertenbroch, K., & Zeelenberg M. (2003). Option attachment: When deliberating makes choosing feel like losing. Journal of Consumer Research, 30, 15-29.
- Cheema, A., & Soman, D. (2006). Malleable mental accounting: The effect of flexibility on the justification of attractive spending and consumption decisions. Journal of Consumer Psychology, 16, 33-44.
- Clark, A. E. (1999). Are wages habit-forming? Evidence from micro data. Journal of Economic Behavior and Organization, 39, pages 179-200.
- Dhar, R., & Wertenbroch, K. (2000). Consumer choice between hedonic and utilitarian goods. Journal of Marketing Research, 37, 60-71.
- Diehl, K., & Zauberman, G. (2005). Searching ordered sets: Evaluations from sequences under search. Journal of Consumer Research, 31, 824-832.
- Diener, E., & Biswas-Diener, R. (2002). Will money increase subjective well-being? A literature review and guide to needed research. Social Indicators Research, 57, 119-169.
- Easterlin, R. (2001). Income and happiness: Towards a unified theory. Economic Journal, 111, 465-84.

- Elster, J., & Loewenstein, G. (1992). Utility from Memory and Anticipation. In G. Loewenstein and J. Elster (Eds.), Choice Over Time (pp. 213–234). New York: Russell Sage Foundation.
- Fox, C. R., Ratner, R. K., & Lieb, D. S. (2005). How subjective grouping of options influences choice and allocation: Diversification bias and the phenomenon of partition dependence. Journal of Experimental Psychology–General 134, 538-551.
- Frank, R. H. (2000). Luxury Fever: Money and Happiness in an Era of Excess. New York : Free Press.
- Frank, R. H., & Cook, P. J. (1996). The Winner-Take-All Society: Why the Few at the Top Get So Much More Than the Rest of Us. New York: Penguin Books.
- Frederick, S., & Loewenstein, G. F. (1999). Hedonic adaptation. In D. Kahneman, E. Diener and N. Schwarz (Eds.), Well-being: The foundations of hedonic psychology (pp. 302-329). New York: Russell Sage Foundation.
- Frey, B. S., & Stutzer, A. (2002a). Happiness and Economics: How the Economy and Institutions Affect Human Well-Being. Princeton, NJ: Princeton University Press.
- Frey, B. & Stutzer, A. (2002b). What can economists learn from happiness research? Journal of Economic Literature, 40, 402-435.
- Gilbert, D. T., Driver-Linn, E., & Wilson, T. D. (2002). The trouble with Vronsky: Impact bias in the forecasting of future affective states. In L. F. Barrett and P. Salovey (Eds.), The Wisdom in Feeling: Psychological Processes in Emotional Intelligence (pp. 114-143). New York: Guilford.
- Gilbert, D. T., Gill, M. J., & Wilson, T. D. (2002). The future is now: Temporal correction in affective forecasting. Organizational Behavior and Human Decision Processes, 88, 430-444.
- Helson, H. (1964). Adaptation-Level Theory: An Experimental and Systematic Approach to Behavior. New York: Harper and Row.
- Hsee, C. K. (1996). The evaluability hypothesis: An explanation for preference-reversal between joint and separate evaluations of alternatives. Organizational Behavior and Human Decision Processes, 67, 247-257.

- Hsee, C. K. (1999). Value seeking and prediction-decision inconsistency: Why don't people take what they predict they'll like the most? Psychonomic Bulletin and Review, 6, 555-561.
- Hsee, C. K. & Abelson, R. P. (1991). Velocity relation: Satisfaction as a function of the first derivative of outcome over time. Journal of Personality and Social Psychology, 60, 341-347.
- Hsee, C. K. & Leclerc, F. (1998). Will products look more attractive when evaluated jointly or when evaluated separately? Journal of Consumer Research, 25, 175-186.
- Hsee, C. K., Loewenstein, G. F., Blount, S., & Bazerman M. H. (1999). Preference-reversals between joint and separate evaluations of options: A review and theoretical analysis. Psychological Bulletin, 125, 576-591.
- Hsee, C. K., Rottenstreich, U. & Xiao, Z. (2005). When is more better? On the relationship between magnitude and subjective value. Current Directions in Psychological Science.
- Hsee, C. K., Salovey, P., & Abelson, R. P. (1994). The quasi-acceleration relation: Satisfaction as a function of the change of velocity of outcome over time. Journal of Experimental Social Psychology, 30, 96-111.
- Hsee, C. K., Yu, F., Zhang, J., & Zhang, Y. (2003a). Medium maximization. Journal of Consumer Research, 30, 1-14.
- Hsee, C. K. & Zhang, J. (2004). Distinction bias: Misprediction and mischoice due to joint evaluation. Journal of Personality and Social Psychology, 86, 680-695.
- Hsee, C. K., Zhang, J., Yu, F., & Xi, Y. (2003b). Lay rationalism and inconsistency between predicted experience and decision. Journal of Behavioral Decision Making, 16, 257-272.
- Iyengar, S. S., & Lepper, M. (2000). When choice is demotivating: Can one desire too much of a good thing? Journal of Personality and Social Psychology, 76, 995-1006.
- Kahneman, D. (1994). New challenges to the rationality assumption. Journal of Institutional and Theoretical Economics, 150, 18-36.

- Kahneman, D. (2000). Experienced utility and objective happiness: A moment-based approach. In D. Kahneman, & A. Tversky (Eds.), Choices, values, and frames (pp. 673-692). Cambridge, England: Cambridge University Press.
- Kahneman, D., Diener, E., & Schwarz, N. (Eds.) (1999). Well-Being: Foundations of Hedonic Psychology. New York: Russell Sage Foundation Press.
- Kahneman, D., Krueger, A. B., Schkade, D. A., Schwarz, N., & Stone, A. A. (2004a). Toward national well-being accounts. American Economic Review, 94, 429-434.
- Kahneman, D., Krueger, A. B., Schkade, D. A., Schwarz, N., & Stone, A. A. (2004b). A survey method for characterizing daily life experience: The day reconstruction method (DRM). Science, 306, 1776-1780.
- Kahneman, D., & Riis, J. (2005). Living, and thinking about it: Two perspectives on life. In F. Huppert, B. Keverne, & N. Baylis (Eds.), The Science of Well Being. Oxford University Press.
- Kahneman, D., & Snell, J. (1992). Predicting a changing taste: Do people know what they will like? Journal of Behavioral Decision Making, 5, 187-200.
- Kahneman, D., & Sugden, R. (2005). Experienced utility as a standard of policy evaluation. Environmental & Resource Economics, 32, 161-181.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decisions under risk. Econometrica, 47, 313-327.
- Kardes, F. R., Cronley, M. L., & Kim, J. (2006). Construal-Level Effects on Preference Stability, Preference-Behavior Correspondence, and the Suppression of Competing Brands. Journal of Consumer Psychology, 16, 135-144.
- Kivetz, R., & Simonson, I. (2002a). Earning the right to indulge: Effort as a determinant of customer preferences toward frequency program rewards. Journal of Marketing Research, 39, 155-170.
- Kivetz, R., & Simonson, I. (2002b). Self-control for the righteous: Towards a theory of pre-commitment to indulgence. Journal of Consumer Research, 29, 199-217.
- Kunreuther, H., Novemsky, N., & Kahneman, D. (2001). Making low probabilities useful. Journal of Risk and Uncertainty, 23, 103-120.
- Loewenstein, G. (1987). Anticipation and the valuation of delayed consumption. The Economic Journal, 97, 668-684.

- Loewenstein, G. (1996). Out of control: visceral influences on behavior. Organizational Behavior and Human Decision Processes, 65, 272-292.
- Loewenstein, G., O'Donoghue, T., & Rabin, M. (2003). Projection bias in predicting future utility. Quarterly Journal of Economics, 118, 1209-1248.
- Loewenstein, G., & Prelec, D. (1993). Preferences for sequences of outcomes. Psychological Review, 100, 91-108.
- Loewenstein, G., & Schkade, D. (1999). Wouldn't it be nice? Predicting future feelings. In D. Kahneman, E. Diener and N. Schwarz. (Eds.), Well-Being: The Foundations of Hedonic Psychology. New York: Russell Sage Foundation.
- Lucas, R. E., Clark, A. E., Georgellis, Y., & Diener, E. (2003). Reexamining adaptation and the set point model of happiness: Reactions to changes in marital status. Journal of Personality and Social Psychology, 84, 527-539.
- March, J. (1994). A Primer on Decision Making: How Decisions Happen. New York: Free Press.
- Nisbett, R. E., & Kanouse, D. E. (1969). Obesity, hunger, and supermarket shopping behavior. Journal of Personality and Social Psychology, 12, 289-94.
- Novemsky, N., & Kahneman, D. (2005a). The boundaries of loss aversion. Journal of Marketing Research, 42, 119-128.
- Novemsky, N., & Kahneman, D. (2005b). How do intentions affect loss aversion? Journal of Marketing Research, 42, 119-128.
- Novemsky, N., & Ratner, R.N. (2003). The time course and impact of consumers' erroneous beliefs about hedonic contrast effects. Journal of Consumer Research, 29, 507-516.
- Nowlis, S. M., Mandel, N., & McCabe, D. B. (2004). The effect of a delay between choice and consumption on consumption enjoyment. Journal of Consumer Research, 31, 502-510.
- O'Curry, S., & Strahilevitz, M. (2001). Probability and mode of acquisition effects on choices between hedonic and utilitarian options. Marketing Letters, 12, 37-49.
- Okada, E. M. (2005). Justification effects on consumer choice of hedonic and utilitarian goods. Journal of Marketing Research, 42, 43-53.

- Parducci, A. (1965). Category judgment: A range-frequency model. Psychological Review, 72, 407-418.
- Parducci, A. (1995). Happiness, Pleasure, and Judgment: The Contextual Theory and its Applications. Mahway, NJ: Erlbaum.
- Pham, M. T. (2004). The logic of feelings. Journal of Consumer Psychology, 14, 360-369.
- Posavac, S. S., Sanbonmatsu, D. M., Kardes, F. R., & Fitzsimons, G. J. (2004). The brand positivity effect: When evaluation confers preference. Journal of Consumer Research, 31, 643-651.
- Posavac, S. S., Sanbonmatsu, D. M., Kardes, F. R., & Fitzsimons, G. J. (2005). Blissful insularity: When brands are judged in isolation from competitors. Marketing Letters, 16, 87-97.
- Prelec, D., & Herrnstein, R. (1991). Preferences or principles: Alternative guidelines for choice. In R. J. Zeckhauser (Ed.), Strategy and Choice. Cambridge, MA: MIT Press.
- Prelec, D., & Loewenstein, G. (1998). The red and the black: Mental accounting of savings and debt. Marketing Science, 17, 4-27.
- Raghunathan, R., & Irwin, J. R. (2001). Walking the hedonic product treadmill: Default contrast and mood-based assimilation in judgments of predicted happiness with a target product. Journal of Consumer Research, 28, 355-368.
- Ratner, R. K., Kahn, B. E., & Kahneman, D. (1999). Choosing less-preferred experiences for the sake of variety. Journal of Consumer Research, 26, 1-15.
- Read, D., & van Leeuwen, B. (1998). Predicting hunger: The effects of appetite and delay on choice. Organizational Behavior and Human Decision Processes, 76, 189-205.
- Robinson, M.D., & Clore, G. L. (2002). Belief and feeling: Evidence for an accessibility model of emotional self-report. Psychological Bulletin, 128, 934-960.
- Riis, J., Loewenstein, G., Baron, J., Jepson, C., Fagerlin, A., & Ubel, P. A. (2005). Ignorance of hedonic adaptation to Hemodialysis: A study using ecological momentary assessment. Journal of Experimental Psychology: General, 134, 3-9.

- Schkade, D.A., & Kahneman, D. (1998). Does living in California make people happy? A focusing illusion in judgments of life satisfaction. Psychological Science, 9, 340-346.
- Schelling, T. C. (1980). The intimate contest for self-command. The Public Interest, 60, 94-118.
- Schelling, T. C. (1984). Self command in practice, in theory and in a theory of rational choice. American Economic Review, 74, 1-11.
- Schulz, R., & Decker, S. (1985). Long-term adjustment to physical disability: The role of social support, perceived control, and self-blame. Journal of Personality and Social Psychology, 48, 1162-1172.
- Schwartz, B. (2004). The Paradox of Choice: Why More Is Less. New York : ECCO.
- Seligman, M.E.P. (2002). Authentic Happiness: Using the New Positive Psychology to Realize Your Potential for Lasting Fulfillment. New York: Free Press/Simon and Schuster.
- Shafir, E., Simonson, I., & Tversky, A. (1993). Reason-based choice. Cognition, 49, 11-36.
- Shiv, B., & Huber, J. (2000). The impact of anticipating satisfaction on consumer choice. Journal of Consumer Research, 27, 202-216.
- Simonson, I. (1989). Choice based on reasons: The case of attraction and compromise effects. Journal of Consumer Research, 16, 158-174.
- Simonson, I. (1990). The effect of purchase quantity and timing on variety-seeking behavior. Journal of Marketing Research, 27, 150-162.
- Simonson, I., & Drolet, A. (2004). Anchoring effects on consumers' willingness-to-pay and willingness-to-accept. Journal of Consumer Research, 31, 681-690.
- Simonson, I., & Nowlis, S. M. (2000). The role of explanations and need for uniqueness in consumer decision making: Unconventional choices based on reasons. Journal of Consumer Research, 27, 49-68.
- Slovic, P., Finucane, M., Peters, E., & MacGregor, D.G. (2002). The affect heuristic. In T. Gilovich, D. Griffin, and D. Kahneman (Eds.), Heuristics and biases: The psychology of intuitive judgment (pp. 397-420). New York: Cambridge University Press.

- Snell, J., Gibbs, B.J., & Varey, C. (1995). Intuitive hedonics: Consumer beliefs about the dynamics of liking. Journal of Consumer Psychology, 4, 33-60.
- Strahilevitz, M. A., & Loewenstein, G. (1998). The effect of ownership history on the valuation of objects. Journal of Consumer Research, 25, 276-289.
- Thaler, R.H. (1980). Toward a positive theory of consumer choice. Journal of Economic Behavior and Organization, 1, 39-60.
- Thaler, R.H. (1985). Mental accounting and consumer choice. Marketing Science, 4, 199-214
- Thaler, R.H. (1999). Mental accounting matters. Journal of Behavioral Decision Making, 12, 183-206.
- Thaler, R.H. & Johnson, E.J. (1990). Gambling with the house money and trying to break even: the effects of prior outcomes on risky choice. Management Science, 36, 643-660.
- Thaler, R.H., & Shefrin, H.M. (1981). An economic theory of self-control. Journal of Political Economy, 89, 392-406.
- Trope, Y., & Liberman, N. (2003). Temporal construal. Psychological Review, 110, 403-421
- Tversky, A., & Griffin, D.W. (1990). Endowment and contrast in judgments of wellbeing. In F. Strack, M. Argyle, & N. Schwarz (Eds.), Subjective Well-being (pp. 101-118). New York: Pergamon.
- Van Boven, L., Dunning, D., & Loewenstein, G. (2000). Egocentric empathy gaps between owners and buyers: misperceptions of the endowment effect. Journal of Personality and Social Psychology, 79, 66-76.
- Van Boven, L, & Loewenstein, G. (2003). Projection of transient drive states. Personality and Social Psychology Bulletin, 29, 1159-1168.
- van Osselaer, S.M.J, Alba, J. W., & Manchanda, P. (2004). Irrelevant information and mediated intertemporal choice. Journal of Consumer Psychology, 14, 257-270.
- Wedell, D. H., & Parducci, A. (1988). The category effect in social judgment: Experimental ratings of happiness. Journal of Personality and Social Psychology, 55, 341-356.

- Wilson, T. D., & Gilbert, D. (2003). Affective forecasting. Advances in Experimental Social Psychology, 35, 345-411.
- Wilson, T. D., Meyers, J., & Gilbert, D. T. (2003). 'How happy was I, anyway?' A retrospective impact bias. Social Cognition, 21, 407-432.
- Wilson, T. D., Wheatley, T., Meyers, J., Gilbert, D. T., & Axsom, D. (2000). Focalism: a source of durability bias in affective forecasting. Journal of Personality and Social Psychology, 78, 821-836.
- Yeung, C. W. M, & Soman, D. (2005). Attribute evaluability and the range effect. Journal of Consumer Research, 32, 363-369.
- Zhang, J., & Hsee, C. K. (2006). Skewness and happiness. Working paper.