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Determinants of Justification and Indulgence

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## Abstract

The decision to indulge is often painful because it evokes guilt and requires sacrificing prudence and necessities. While prior research and common sense suggest that people will allow themselves to indulge when they have a compelling justification, we still know very little about the determinants of such justification and consequent indulgence. Building on prior analyses in the social sciences, we propose two complementary routes to justifying indulgence: one through hard work or excellent performance (an entitlement justification) and the second through the attainment of indulgence without depleting income or monetary resources. A synthesis of these two routes leads to several hypotheses, which are tested using actual effort tasks and real choices. Consistent with the two routes to justification, we demonstrate that (a) higher required effort enhances preference for indulgence rewards, but a reverse effect is observed when the interchangeability of effort and income is implied; (b) providing (bogus) excellence feedback on an effort task enhances choices of indulgence over a more prudent necessity, unless the interchangeability of effort and income is suggested; (c) willingness-to-pay in effort is greater for indulgences than necessities, but willingness-to-pay in money or in effort framed as income is higher for necessities than indulgences; and (d) sensitivity to the type and magnitude of the perceived resource is greater for individuals with stronger indulgence guilt. We conclude by discussing the automaticity of justification and indulgence and the ability of the discovered justification routes to explain the findings of prior research.

A fundamental choice that people must often make is between indulging and delaying gratification. How decision-makers resolve this dilemma is a central question in the voluminous and interdisciplinary literatures on self-control and time-inconsistency, which examine tradeoffs between immediate pleasures and long-term interests (vices versus virtues, respectively). Although the majority of prior studies have focused on myopia (i.e., short-sightedness or present-biased preferences; e.g., Ainslie, 1975; Bénabou & Tirole, 2004; Elster, 1979; Loewenstein, 1996; Metcalfe & Mischel, 1999; Prelec & Herrnstein, 1992a; Schelling, 1992; Strotz, 1955; Thaler & Shefrin, 1981; Trope & Fishbach, 2000), recent research shows that people sometimes suffer from hyperopia (future-biased preferences) and under-indulgence (Kivetz & Simonson, 2002). Given the centrality of the tradeoff between desire and prudence in the extant literature and the evidence that people often perceive themselves as unbalanced with respect to such choices, it is important to gain a deeper understanding of the psychology of the decision to indulge.

Prior research and common sense suggest that people will allow themselves to indulge when they have a compelling justification (e.g., Prelec & Herrnstein, 1991; Shafir, Simonson, & Tversky, 1993). Without such a justification, choosing or expending resources for pleasurable yet unnecessary items and experiences may evoke guilt (e.g., Giner-Sorolla, 2001). However, a critical question that has not yet been studied is what determines whether people feel justified to indulge. Accordingly, the main goal of the present research is to shed light on the antecedents of justification and indulgence.

Building on prior analyses in the social sciences (e.g., Kivetz & Simonson, 2002b; Maslow, 1970; Prelec & Loewenstein, 1998; Scitovsky, 1992; Thaler, 1985; Weber, 1958), we propose two complementary routes to justifying indulgence: one through hard work or excellent performance (i.e., an entitlement or deservingness justification) and the second through the attainment of

indulgence without the depletion of income. A synthesis of these two routes suggests that the preference for indulgence and luxury relative to more prudent alternatives (e.g., necessities) will increase when required resources are perceived as effort but will decrease when required resources are perceived as income or money. Accordingly, study 1 demonstrates that higher effort requirements enhance choice of luxury over necessity rewards. Studies 2a and 2b show that, although increasing the required effort enhances the preference for indulgence, implying that such effort is interchangeable with income (by suggesting the monetary opportunity cost of the effort) reverses this effect. Study 3 extends the entitlement justification by demonstrating that participants who are led to believe that they excelled in an effort task are more likely to choose indulgence compared to participants who are provided with mediocre or no performance feedback; we also re-examine the attenuating effect of alluding to the monetary opportunity cost of the effort activity. The final two studies investigate the implications of the two justification routes for willingness to expend different resources to attain either indulgences or more prudent necessities. In particular, study 4 shows that people are willing to pay in effort more for luxury than for necessity but are willing to pay in money less for luxury less than for necessity. Study 5 generalizes this finding by holding constant the actual resource investment and framing it as either effort (solving anagrams) or income (by providing the typical, yet unavailable wage per anagram solution).

Throughout the studies we demonstrate that the predicted effects are more pronounced among individuals who suffer from stronger “indulgence guilt.” Such people have a greater need to justify indulgence, and therefore, rely more heavily on justification cues. The studies employ a variety of real effort activities (e.g., completing a computerized letter recognition task) and real choices between items of indulgence and necessity (e.g., gourmet chocolates vs. batteries). The final section highlights the automaticity of the two justification routes and their ability to explain

the findings of prior research on indulgence and self-control.

### Factors Affecting the Decision to Indulge

Decisions involving the attainment and experience of indulgence are likely to evoke guilt and considerable intra-personal conflict, as they require balancing the desire for pleasure with the need for restraint and prudence. Given the difficulty of making such tradeoffs, people are likely to resort to principles and decision rules (e.g., Prelec & Herrnstein, 1991) when considering spending income and money on indulgences or choosing between luxuries and necessities. As we discuss next, such decision rules favor necessities and savings, which can often result in overcontrol and chronic deficiency of hedonic experiences. Nevertheless, recent research implicates several guilt-reducing mechanisms that individuals may use to justify indulgence. We review this research and subsequently propose two main antecedents of the ease of justifying indulgence: feelings of entitlement and perceptions of the invested resource. Of course, other important factors affect the decision to indulge, such as visceral and emotional influences (Loewenstein, 1996; Schwarz, 1990), reward saliency (Mischel, 1981), and goal-directed behavior (Dhar & Simonson, 1999). In this research, however, we focus on two main routes to justifying indulgence; a synthesis of these routes leads to new interesting hypotheses, which we test in a series of studies.

### *The Overcontrol of Indulgence*

Recent research suggests that a substantial segment of people suffer from insufficient indulgence and deprive themselves of pleasurable experiences (Kivetz & Simonson, 2002a; see also Thaler, 1985). There are several explanations for why individuals might find it difficult to select luxury and indulgence, particularly when such choices require sacrificing necessities and income.

First, analyses in philosophy, sociology, and political science suggest that relative to necessity, luxury and indulgence have a lower status in the hierarchy of needs (e.g., Maslow,

1970). Both societies and individuals tend to subscribe to a *principle of precedence* (Berry, 1994), whereby accommodating one person's (or one group's) need (for a necessity) is more important than satisfying another's desire (for a luxury). Such a principle of precedence is consistent with the argument that in American culture a Protestant Ethic has led to a form of rationalized capitalism in which making money and spending it frugally (i.e., on necessities rather than on luxuries) is an ethical obligation (Weber, 1958; see also Scitovsky, 1992).

Second, research in social psychology and decision-making has uncovered a number of psychological mechanisms that contribute to the overcontrol of indulgence. The idea that choice is based on reasons (Shafir et al., 1993; Simonson, 1989; Simonson & Nowlis, 2000) implies that indulgences are at a natural disadvantage relative to utilitarian necessities, because the latter can always be explained using some undisputed, universal need. Relatedly, Prelec and Herrnstein (1991) argue that people often hold moral or prudential rules against hedonic experiences, especially when such experiences crowd out more noble activities (e.g., working and saving). Further, sacrificing virtues, necessities, and income for the sake of indulgence is likely to evoke guilt. That is, indulgence can be construed as wasteful and detrimental to long-term goals and thus induce feelings of guilt or at least ambivalence. Indeed, Giner-Sorolla (2001) finds that feelings of guilt are highly accessible among high self-control people who tend to resist temptations; priming such self-conscious negative affect (e.g., using word puzzles) is also shown to increase self-control and lead to less consumption of indulgent food.

Research on mental accounting supports the notion that people may not spend enough on luxuries and other indulgences. For example, Thaler (1985) proposes a theory of gift-giving, whereby luxuries are especially attractive gifts because people tend to over-constrain the purchase of such items for themselves. Indeed, Prelec and Loewenstein (1998) suggest that the pain of

paying is greater for hedonic luxuries than for necessities. Kivetz and Simonson (2002a) argue that a sizable segment of people suffer from “hyperopia” (excessive farsightedness) and future-biased preferences. As evidence, they show that people employ pre-commitments to indulgence; such people choose hedonic luxury rewards over cash of equal or greater value and explain such choices as intended to guarantee that the award is not used for necessities or savings.

In summary, prior research and analyses regarding people’s and society’s perceptions highlight the difficulty and need to justify choosing indulgence over virtue or necessity. Further, the justification concerns and guilt associated with indulgence are magnified when expended resources are perceived as income. Nevertheless, as discussed next, decision-makers can employ two broad mechanisms to reduce guilt and justify indulgence.

#### *Routes to Justifying Indulgence*

Recent research suggests that expending effort may lead individuals to feel entitled to indulge. Specifically, in the context of frequency programs, Kivetz and Simonson (2002b) demonstrate that consumers are more likely to select luxury over necessity rewards when these rewards are contingent upon greater program requirements (e.g., purchasing gasoline twenty vs. ten times). To the extent that complying with frequency program requirements is perceived as difficult, this finding suggests that effort can enhance choice of indulgence.

The notion that effort can justify indulgence is consistent with the literatures reviewed earlier. Specifically, if choice is based on reasons and principles (e.g., Shafir et al., 1993; Prelec & Herrnstein, 1991), then investing high effort may provide a compelling justification or script for selecting indulgence. Such an effect of effort on indulgence is also consistent with the Puritanic idea that one is entitled to the “good life” only after hard work (e.g., Weber, 1958).

Interestingly, an alternative route to justifying indulgence involves windfall gains, such

as lottery prizes (Arkes et al., 1994). That is, it is less painful to acquire hedonic luxuries using resources that are perceived as windfall as opposed to regular income or out-of-pocket monetary costs (see also Prelec & Loewenstein, 1998). For example, O'Curry and Strahilevitz (2001) show that compared with a standard purchase, choosing in a windfall (lottery) situation enhances the preference for hedonic over utilitarian options. It appears, then, that spending on indulgences is particularly sensitive to their perceived monetary cost, which is consistent with the assumption in microeconomics that luxuries have a greater price (and income) elasticity of demand compared to necessities (e.g., Kemp 1998; Lipsey 1989).

#### *Determinants of Justifying Indulgence: A Synthesis*

The review of prior research suggests two broad mechanisms for reducing guilt and increasing indulgence. Specifically, both high effort and low monetary (or income) costs may provide a special justification to indulge.

These two routes may initially appear contradictory, as the first suggests that investing greater resources justifies indulgence and the second implies the exact opposite. However, the two routes involve very different types of resources, namely, effort versus money (or income). Expending high effort provides a compelling justification to indulge, namely entitlement or deservingness ("earning the right to indulge"). In contrast, spending money or regular income on indulgence is particularly difficult to justify (to oneself and to others), because such resources are essential for immediate necessities and future needs. In both cases, the dilemma whether or not to indulge is resolved based on the accessibility of certain cues (e.g., effort; monetary or income costs) that affect the ease of justifying indulgence.

The reliance on justification cues automates and shortens the otherwise difficult and conflictual decision of whether to indulge. More specifically, trading off the desire for pleasure



with the need for prudence can evoke considerable intra-personal conflict (e.g., Bazerman, Tenbrunsel, & Wade-Benzoni, 1998), and thus, lead to a lengthy and painful decision process (Houston, Sherman, & Baker, 1991). In such a case, people may rely on a compelling rationale or reason instead of a deliberate and calculated decision process (Shafir et al., 1993). Relatedly, Prelec and Herrnstein (1991, p. 336) describe choice as “a search for a unique principle,” which replaces a case-by-case cost-benefit calculation that trades-off among the competing dimensions of the possible options. Indeed, given the non-comparable nature of indulgence and necessity (e.g., Slovic & MacPhillamy, 1974), weighing and trading off their (unique) attribute values can be an arduous task, therefore calling for an alternative, rule-based heuristic approach.

In summary, we argue that the decision whether or not to indulge is complex, susceptible to conflicting moral and emotional influences (e.g., guilt vs. hedonism), and inconducive to attribute comparisons and cost-benefit analyses. Consequently, people rely on principles and justification cues, which automate and guide an otherwise intricate and difficult decision. We propose two main determinants of justification and consequent indulgence, namely entitlement and perceptions that the required resource investment does not deplete income. As discussed earlier, in the absence of a salient justification to indulge, people are relatively more likely to resist temptation and choose necessity, which is inherently easier to defend (e.g., Kivetz & Simonson, 2002a).

It is important to emphasize that we study situations in which the decision to indulge is generated by --- rather than generates --- justifications. In our experiments, justification cues are externally manipulated and antecede decisions. We do not explore other important types of justification and motivated reasoning that people construct after they form a tentative preference or judgment (e.g., Festinger, 1957; Kruglanski, 1990; Kunda, 1990).

Next, we investigate the two main routes to justification. We begin by testing the

prediction that investing high effort provides an entitlement to indulge; we also examine the role of indulgence guilt as a moderator of the (unconscious) tendency to rely on effort as a justification. In subsequent studies, we examine those dimensions of justification that concern the impact of resources perceived as income; we also extend the entitlement-based justification from effort to excellence. We conclude by discussing the automaticity of justification and indulgence, the mental accounting and interplay of effort, income, and rewards, and the ability of the discovered justification routes to explain the findings of prior research.

### Study 1: The Role of Effort and Indulgence Guilt

As discussed previously, a basic assumption is that the easier it is to justify indulging, the more likely the decision-maker is to choose hedonic alternatives and luxuries. We proposed that one principle that can be employed to justify indulgence is that of entitlement, whereby investing high effort earns the right to indulge. Accordingly, we predict that people will be more likely to select indulgence over necessity rewards when such rewards are contingent on exerting higher effort. Further, individuals who feel stronger guilt about (and therefore greater need to justify) choosing and experiencing indulgence should rely more heavily on justification cues. Such individuals are expected to be particularly sensitive to the level of effort when deciding whether or not to indulge. Thus:

**H1:** Greater effort requirements will increase choices of indulgence over necessity rewards.

**H2:** The positive effect of effort on the decision to indulge will be stronger for individuals who experience greater indulgence guilt.

### *Method*

Respondents were 81 students in a large East Coast university. They were randomly assigned to one of two (between-subjects) conditions, involving either low- or high-required

effort. Respondents were asked to imagine that as part of a course requirement they had to participate in two or five research studies (low vs. high effort, respectively), each study lasting an hour. As a reward for participating in these studies, they were asked to choose between two rewards: a video store certificate for purchasing or renting movies (i.e., an item of indulgence) and a certificate for purchasing stationery and other supplies for school (i.e., a necessity).<sup>1</sup> The value of the reward certificates was \$20 and \$50 in the low and high effort conditions, respectively (in subsequent studies, we hold constant the monetary value of rewards across all conditions).

After making their choice, respondents were asked to explain their decision in writing (nothing insightful was found in these choice explanations, which were also collected in the subsequent three studies and, therefore, we only discuss this measure in the general discussion). Respondents next rated the extent to which they felt guilty about their choice of reward. Ratings were made on an 11-point scale, ranging from (0) “No guilt at all” to (10) “A lot of guilt.” In addition, as a check for the effort manipulation, respondents rated the degree to which participating in the research studies involved effort for them, using an 11-point scale ranging from (0) “No effort at all” to (10) “Very high effort.” They then received several “filler” problems from unrelated research. Finally, to test hypothesis 2, respondents were asked to rate whether they tended to feel guilty when considering “luxurious products and services that are pleasurable but not necessary.” Ratings were made on an 11-point scale ranging from “Never” (0) to “Always” (10).

## *Results and Discussion*

### *Manipulation Checks*

The manipulation of effort produced the expected effort perceptions, with respondents in the high effort condition indicating directionally higher mean perceived effort compared to respondents in the low effort condition ( $M = 5.7$  vs.  $M = 4.7$ ;  $t = 1.5$ ,  $p = .06$ ). Further, respondents’

guilt about their choice of reward supported the notion that investing high effort serves as a guilt-reducing justification. In particular, in the low effort condition, respondents who selected the video certificate felt more guilt about their choice than did respondents who selected the stationery certificate ( $t = 1.8, p < .05$ ). This result implies that in the absence of a compelling justification, choosing indulgence evokes guilt. However, in the high effort condition, respondents felt equal (low) guilt about their choice regardless of the particular reward they selected ( $t = .1, p > .9$ ), which suggests that the higher effort requirement reduced the guilt associated with choosing indulgence.

### *Reward Choices*

As predicted by hypothesis 1, the share of respondents who selected the video over the stationery certificate was significantly greater in the high- than low-required effort condition (76% [31 out of 41 respondents] vs. 53% [21 out of 40 respondents];  $t = 2.2, p = .01$ ). To test hypothesis 2, we divided respondents into two groups, high and low guilt, based on a median split of their indulgence guilt scores (means and standard deviations of guilt scores in the high versus low guilt groups were 6.9 [ $SD = 1.5$ ] versus 2.5 [ $SD = 1.6$ ], respectively). We then used a logistic regression to test the prediction that the positive effect of effort on the choice share of the indulgence reward is stronger for respondents with a greater tendency to feel indulgence guilt (in this and the subsequent studies, we employed a median-split of the indulgence guilt scores for expositional ease; in all studies, similar results were obtained when the continuous measure of indulgence guilt was used in a logistic regression analysis). Consistent with hypothesis 2, the interaction between guilt and effort was statistically significant and in the hypothesized direction ( $Wald-\chi^2 = 4.4; p < .05$ ). Specifically, greater effort requirements increased the share of the indulgence reward by 28% in the high guilt group (74% vs. 46%;  $t = 1.9, p < .05$ ) compared to an increase of only 16% in the low guilt group (77% vs. 61%;  $t = 1.1, p > .1$ ).

In summary, the results provide initial support for an entitlement route to justification, indicating that higher effort requirements shifted preference in favor of indulgence at the expense of necessity. Additionally, the effect of effort was stronger among individuals who tend to suffer from greater indulgence guilt, a finding that is consistent with the notion that intra-personal conflict and need to justify indulgence motivates the reliance on justification cues. However, one weakness of the present study was that it entailed hypothetical choices and (future) effort requirements. Accordingly, in subsequent studies, we examine real choices made by participants who actually exert effort with varying levels of intensity or perceived success.

#### The Impact of Perceiving Effort as Income

We proposed that people resolve the dilemma between indulgence and prudence heuristically, employing ease of justification as a surrogate for a more calculated tradeoff. Further, we argued that indulgence can be justified using the investment of effort, and accordingly, demonstrated that greater effort requirements increase choices of luxury over necessity rewards.

In this and the subsequent studies, we contrast the effects of perceiving resources as effort versus as income. We suggest that effort and income investments have diametrically opposed effects on the justification of indulgence. While expending effort makes it easier to justify indulging, spending income makes it more difficult.

Although the fruits of effort can (and are often) converted into income, monetary resources are more likely to be spontaneously perceived as an integral part of one's regular income. Such income (and by extension monetary resources) are vital for immediate necessities as well as savings for future needs. Thus, contrary to investing effort, expending money on pleasurable yet unnecessary items and experiences is not expected to reduce guilt or be easily justified. On the contrary, incurring monetary costs for the sake of indulgence is likely to be

perceived as wasteful, irresponsible, and even immoral: the more money spent on indulgence, the less income left for attaining necessities and securing the future.

The earlier analysis of the extant literature supports the notion that it is difficult to justify spending money and income on indulgence. Specifically, prior research suggests that the pain of paying may be greater for hedonic luxuries (Prelec & Loewenstein, 1998), that indulgence has a lower status in the hierarchy of needs (Berry, 1994; Maslow, 1970), and that people often need to pre-commit to indulgence in order to overcome their resistance to spending money on such items (Kivetz & Simonson, 2002a).

In summary, building on prior research, we predict that when effort is framed as income, the positive effect of greater effort on preference for indulgence should reverse. Specifically, implying that effort has a monetary opportunity cost (e.g., by providing information regarding the typical wage for such effort) highlights the fact that effort can, and is often, converted into income, and thus, undermines the ability to justify choices of indulgence over necessity via higher effort. In fact, when the interchangeability of effort and income is transparent, greater effort requirements are expected to make it harder to justify choosing indulgence over necessity, because such choices will be perceived as a greater waste of hard-earned income. The discussion leads to the following hypothesis:

- H3:** Greater effort requirements will increase choices of indulgence over necessity rewards, but when the monetary opportunity cost of effort is implied, greater effort requirements will decrease choices of indulgence over necessity rewards.

#### *Study 2a*

In this study, we test hypothesis 3 and the prediction that high (compared to low) indulgence guilt individuals drive the hypothesized interaction effect. This study also allows us

to generalize the results of study 1 by using a real and very different effort task (solving ten anagrams) and manipulation of effort level (finding one vs. two words per anagram); we also employ other types of indulgence and necessity rewards.

### *Method*

The participants were 115 students at a large East Coast university. They were paid \$7 each for their participation in this study and a series of other (unrelated) studies, which took place in a behavioral research lab. Participants were randomly assigned to one of four conditions in a 2 (required effort level: low vs. high) x 2 (effort opportunity cost: implied vs. not implied) between-subjects design.

Participants were informed that the study was about word perception and that they will need to solve (i.e., unscramble) ten word anagrams. They were given an example of one anagram (“IRENFD”), its correct solution (either “FRIEND” or “FINDER”), and an invalid solution (“FIEND”). In the low effort conditions participants were asked to find one correct word per anagram, whereas in the high effort conditions they were asked to find two correct words per anagram. Participants in all conditions then received a list of ten anagrams, each followed by either one or two spaces (depending on the manipulated effort level) for writing the anagram’s solution/s. We adopted the ten anagrams from Shah, Higgins, and Friedman (1998, p. 293) and determined the correct solutions using [www.wordsmith.org](http://www.wordsmith.org).

After participants completed the ten anagrams, they received another page that informed them that the study was conducted in collaboration with researchers from another university. In the conditions in which the opportunity cost of effort was suggested, participants were also told that the researchers from the other university typically offer participants a compensation of \$5 in cash, but that due to administrative issues this payment was unavailable. Participants were then

asked to imagine that, instead of the \$5 cash award, they could receive their choice from a set of four rewards. In the conditions in which the opportunity cost of effort was not suggested, no cash compensation was mentioned. Rather, in these conditions participants were asked to imagine that the researchers from the other university offered them a choice among four rewards. The four rewards consisted of two indulgence items, a box of fine chocolate and an individual-size cup of Häagen-Dazs ice cream, and two necessity items, a basic pocket calculator and a set of four highlighters. Prior to selecting their preferred reward, participants in all conditions were shown a picture of each of the four rewards and were told that each had a retail value of about \$5.

After participants chose their preferred reward, they returned all prior pages and received a new page with checks for the effort manipulation. Specifically, they were asked to rate the extent to which the anagram task was difficult (using a 7-point scale ranging from (1) “Very easy” to (7) “Very difficult”) and involved effort (using a 7-point scale ranging from (1) “No effort at all” to (7) “Very high effort”). Respondents then received four pages with “filler” problems from unrelated research. Next, they were asked to rate their tendency to feel guilt when considering pleasurable luxuries (using a seven-point version of the “indulgence guilt scale” described earlier). Finally, before participants in all four conditions were debriefed and thanked, they were probed for suspicion and asked to indicate what they thought was the purpose of the anagram study. None guessed the actual purpose of the study or articulated the hypotheses being tested.

### *Results*

*Manipulation checks.* The manipulation of effort produced the expected effort perceptions; participants who were required to find two words per anagram rated the anagram task as significantly more difficult and involving significantly more effort than did participants who were required to find only one word per anagram ( $M = 5.3$  vs.  $M = 3.9$ ;  $t = 4.6$ ,  $p < .0001$



and  $M = 5.0$  vs.  $M = 4.0$ ;  $t = 4.0$ ,  $p < .0001$ ; for difficulty and effort scales, respectively). Further, consistent with the notion that participants in the high compared to low effort conditions worked harder, participants in the former condition listed (on average) a significantly greater total number of words ( $M = 15.2$  vs.  $M = 9.4$ ;  $t = 7.1$ ,  $p < .0001$ ).

*Reward choices.* To test hypothesis 3 and the moderating effect of indulgence guilt, we examined the likelihood of choosing one of the two indulgence rewards as opposed to one of the two necessity rewards (i.e., the relative choice share of indulgence rewards). The interaction between effort level and effort opportunity cost was statistically significant and in the predicted direction ( $t = 1.8$ ,  $p < .05$ ). When the opportunity cost of the anagram task (i.e., \$5) was not mentioned, participants were significantly more likely to choose a reward of indulgence rather than necessity in the high compared to low effort condition (82% [22 out of 27] vs. 60% [18 out of 30];  $t = 1.8$ ,  $p < .05$ ). This effect supports hypothesis 1. More importantly, as predicted by hypothesis 3, this effect reversed when the opportunity cost of the anagram task was suggested. In particular, when participants were provided with information about the unavailable cash compensation, they were directionally less likely to choose a reward of indulgence rather than necessity in the high compared to low effort condition (61% [17 out of 28] vs. 70% [21 out of 30];  $t = .8$ ,  $p > .1$ ).

To examine the moderating role of indulgence guilt, we divided participants into two groups, high and low guilt, based on a median split of their indulgence guilt scores (means and standard deviations of guilt scores in the high vs. low guilt groups were 5.6 [ $SD = .7$ ] vs. 3.0 [ $SD = .9$ ], respectively). As expected, for high indulgence guilt participants, the interaction between effort level and opportunity cost was statistically significant and in the predicted direction ( $t = 2.1$ ,  $p < .05$ ). Further, as shown in figure 1 (left panel), for high guilt participants, the simple effects of effort level were in the directions predicted by hypothesis 3 when the

opportunity cost of effort was either omitted or mentioned ( $p < .05$  and  $p = .1$ , respectively). In contrast, for low indulgence guilt participants, the interaction between effort level and opportunity cost did not approach statistical significance ( $t = .3, p > .1$ ). Further, as illustrated in figure 1 (right panel), for low guilt participants, the simple effects of effort level did not approach statistical significance in either condition of the opportunity cost manipulation (both  $p$ 's  $> .1$ ). Thus, the results support the prediction that individuals who experience stronger indulgence guilt drive the hypothesized interaction between effort level and opportunity cost.

In addition, although this was not the main purpose of study 2a, this study allows us to retest hypothesis 2 regarding the moderating role of indulgence guilt on the effect of effort. When information about opportunity cost was omitted, the interaction of effort level and guilt was marginally significant and in the hypothesized direction ( $Wald-\chi^2 = 3.4; p < .07$ ). More specifically, greater effort requirements increased the share of the indulgence reward by 28% in the high guilt group (83% vs. 56%;  $t = 1.9, p < .05$ ) compared to an increase of only 11% in the low guilt group (78% vs. 67%;  $t = .6, p > .1$ ).

### *Study 2b*

The previous study tested hypothesis 3 and other predictions using a real effort task but hypothetical reward choices. The present study employs the same real effort task (solving anagrams) and offers a more realistic test by examining real choices among a new set of rewards.

### *Method*

The participants were 79 students at a large East Coast university. Except for the fact that participants made real choices between two new rewards, the experimental procedure was identical to that used in study 2a, with the same 2 (required effort level: low vs. high) x 2 (effort opportunity cost: implied vs. not implied) between-subjects design. The two rewards, representing a utilitarian

necessity and an item of indulgence were, respectively, (a) “4 AA or AAA Duracell Alkaline Batteries” and (b) “a box of Godiva 4 Piece Assorted Deluxe Chocolates.” Participants were shown the two rewards prior to making their choice and were told that each had a retail value of about \$5. As in study 2a, before participants were debriefed and thanked, they were probed for suspicion and asked to indicate what they thought was the purpose of the study. None guessed the actual purpose of the study or articulated the hypotheses being tested.

### *Results*

*Manipulation checks.* The manipulation of effort produced the expected effort perceptions; participants who were required to find two words per anagram rated the anagram task as significantly more difficult and involving significantly more effort than did participants who were required to find only one word per anagram ( $M = 5.3$  vs.  $M = 4.2$ ;  $t = 3.8$ ,  $p < .0005$  and  $M = 5.6$  vs.  $M = 4.4$ ;  $t = 4.0$ ,  $p < .0005$ ; for difficulty and effort scales, respectively). Further, consistent with the notion that participants in the high compared to low effort conditions worked harder, participants in the former condition listed (on average) a significantly greater total number of words ( $M = 12.9$  vs.  $M = 8.3$ ;  $t = 5.4$ ,  $p < .0005$ ).

*Reward choices.* Consistent with hypothesis 3, participants’ reward choices revealed a significant interaction between effort level and opportunity cost ( $t = 3.6$ ,  $p < .0005$ ). When the opportunity cost of the anagram task (i.e., \$5) was not mentioned, participants were significantly more likely to choose the chocolates over the batteries in the high than low effort condition (50% [10/20] vs. 21% [4/19];  $t = 2.0$ ,  $p < .05$ ). This effect supports hypothesis 1. More importantly, as predicted by hypothesis 3, this effect reversed when the opportunity cost of the anagram task was suggested. In particular, when participants were informed about the unavailable cash

compensation, they were significantly less likely to choose the chocolate reward over the batteries in the high than low effort condition (32% [6/19] vs. 76% [16/21];  $t = 3.2, p < .005$ ).

To examine the moderating role of indulgence guilt, we divided participants into two groups, high and low guilt, based on a median split of their indulgence guilt scores (means and standard deviations of guilt scores in the high vs. low guilt groups were 5.7 [ $SD = .8$ ] vs. 3.0 [ $SD = .9$ ], respectively). As expected, for high indulgence guilt participants, the interaction between effort level and opportunity cost was statistically significant and in the predicted direction ( $t = 3.5, p < .001$ ). Further, as shown in figure 2 (left panel), for high guilt participants, the simple effects of effort level were in the directions predicted by hypothesis 3 when the opportunity cost of effort was either omitted or mentioned ( $p < .05$  and  $p < .01$ , respectively). In contrast, for low indulgence guilt participants, the interaction between effort level and opportunity cost did not approach statistical significance ( $t = 1.1, p > .1$ ). Further, as illustrated in figure 2 (right panel), for low guilt participants, the simple effects of effort level were not statistically significant when the opportunity cost of effort was either omitted or mentioned ( $p > .1$  and  $p = .07$ , respectively). Thus, the results support the prediction that individuals who experience stronger indulgence guilt drive the hypothesized interaction between effort level and opportunity cost.

In addition, although this was not the main purpose of study 2b, this study allows us to retest hypothesis 2 regarding the moderating role of indulgence guilt on the effect of effort.

When information about opportunity cost was omitted, the interaction of effort level and guilt was statistically significant and in the hypothesized direction ( $Wald-\chi^2 = 4.0; p < .05$ ).

Specifically, greater effort requirements increased the share of the indulgence reward by 40% in the high guilt group (57% vs. 17%;  $t = 2.4, p < .05$ ) compared to an increase of only 4% in the low guilt group (33% vs. 29%;  $t = .2, p > .1$ ).

*The Impact of Perceiving Effort as Income: Discussion*

The findings of studies 2a and 2b are noteworthy in three respects. First, consistent with hypothesis 3, they indicate that the positive effect of effort on choices of indulgence reverses when the fungibility of effort and income is highlighted. That is, the same manipulation of higher effort can either depress or enhance choices of indulgence depending on whether or not people consider the monetary opportunity cost of the effort activity. More generally, while expending higher effort provides an entitlement to choose indulgence, spending (what is perceived as) harder earned income on indulgence is difficult to justify. These results support the existence of the two routes to justifying indulgence.

Second, some critics of laboratory decision research point to the hypothetical nature of the choices and judgments, arguing that the observed effects might not occur when real decisions are involved. The observed interaction effect, however, appears stronger in study 2b than in study 2a, when participants made real rather than hypothetical reward choices, respectively. Thus, laboratory studies may in fact often underestimate the magnitude of tested effects, because hypothetical problems are less effective in eliciting the psychological states that lead to the choices and judgments at issue in more natural conditions. And third, in addition to hypothesis 3, these studies also supported hypotheses 1 and 2 as well as the moderating role of indulgence guilt with real choices.

The findings of studies 2a and 2b also raise several interesting conceptual issues. Specifically, in both studies, participants in the low-effort conditions were more likely to select the indulgence reward when the monetary opportunity cost of effort was mentioned rather than omitted (this simple effect was significant in study 2b). One possible interpretation for this tentative result, which merits further research, is that the (unavailable) cash compensation was

perceived as a windfall gain when it was contingent on a particularly easy effort requirement. As discussed earlier, windfall gains serve as an alternative mechanism for justifying indulgence. Thus, suggesting that the low-effort task typically earns cash may increase the preference for indulgence rewards by implying that such rewards are financed by “easy” (i.e., windfall) money.

Finally, these studies allude to the possibility of another entitlement mechanism, namely excellence or outstanding performance. In particular, in both studies 2a and 2b, participants in the low-effort conditions who solved more anagrams were significantly more likely to select the indulgence reward, suggesting that those with greater success in the task felt stronger deservingness. Thus, while low-effort participants could not rely on effort as a cue that justifies indulgence, the (excellent) performance of some of them may have provided other means of entitlement. Next, we examine the effect of a systematic manipulation of perceived performance on real decisions to indulge.

#### Study 3: Excellence as a Justification to Indulge

We have proposed that high effort creates an entitlement-based justification to indulge. Indeed, the studies described so far indicated that expending higher effort enhanced choices of indulgence over necessity rewards. The present study explores a complimentary factor that may generate a feeling of entitlement to self-reward, namely excellent performance or achievement. We predict that similar to working hard, perceiving oneself as excelling in a given task will justify and promote indulgence. Thus:

**H4:** Excelling in a task will increase choices of indulgence over necessity rewards.

To test the prediction that excellence provides an entitlement to indulge, we developed a computerized letter recognition task that gave participants performance feedback (which was unobtrusively manipulated). As detailed subsequently, participants earned points for pressing

specific keys in response to the letters being flashed on their computer monitor. The study originally included three feedback conditions, (1) a bogus excellence condition, in which participants were told that they scored in the top 90% percentile, (2) a bogus mediocrity condition, in which participants were told that they scored in the top 50% percentile, and (3) a no-excellence condition, in which participants were not provided with any information about their relative performance. Initial analyses with a subset of participants, indicated that, as we expected, the mediocrity and no-excellence conditions produced similar results, and therefore, the former condition was discontinued. Thus, in the study reported next, we focus on the excellence and no-excellence conditions; including the mediocrity condition does not alter the nature of the results.

In addition to investigating the impact of excellence, this study re-examines the effects of individual differences in indulgence guilt and of equating effort with income (by suggesting the monetary opportunity cost of the effort task). With regards to the latter, we did not have an a priori hypothesis: on the one hand, highlighting the fungibility of effort and income was previously shown to depress the ability to use high effort as a justification to indulge; on the other hand, given that in this study we manipulate the perceived performance but hold constant the level of required effort, there is no reason that any particular performance condition will be perceived as a greater income investment.

### *Method*

The participants were 139 students at a large East Coast university. They were paid \$7 each for their participation in this study and a series of other (unrelated) studies, which took place in a behavioral research lab. Participants were randomly assigned to one of four conditions in a 2 (performance feedback: excellence vs. no-excellence) x 2 (effort opportunity cost: implied vs. not implied) between-subjects design. Participants were informed that the study was about letter

recognition and reaction time.

Each participant sat in a separate cubicle with a personal computer, on which the letter recognition study was conducted. The computer program (which we developed using Visual C++ software) introduced participants to the study by informing them that they will be asked to complete three similar tests; in each test 50 letters were to be briefly displayed consecutively. Participants were told that they will need to press specific keys in response to the particular letters being flashed and that the relevant keys and letters will vary across the three tests. They were also informed that for each letter displayed, they would win points if they pressed the correct key while that letter was still displayed on the screen, but would lose points if they pressed the wrong key or if they did not press any key at all. Participants were told that after they completed the three tests their total score would be shown on the screen. Then after a practice task, participants worked on the three tests. Figure 3 displays the instructions for the first test and the actual interface used to flash the letters.

Unbeknownst to the participants, after they completed the three tests, the computer program randomly assigned them to one of the four conditions mentioned earlier. Participants in the excellence conditions saw a screen that displayed their (supposed) total score and congratulated them on achieving a score that was “above 90% of all scores previously obtained in this ongoing study.” To verify that participants who received this excellence feedback indeed perceived their score as high (otherwise the excellence manipulation would raise suspicion), the program automatically added 50 points to their real score. Next, participants in the excellence conditions saw a screen indicating that, as a token of appreciation, an excellence reward is offered “only to those participants who demonstrate outstanding performance in the top 90<sup>th</sup> percentile.” For excellence participants in the no-opportunity-cost condition, this final screen offered a choice



between two rewards, the batteries and the chocolates mentioned earlier (i.e., a necessity and an indulgence, respectively). Participants were shown a picture of the two rewards, were told that each had a retail value of about \$5, and were asked to indicate their choice. They were then directed to call the experimenter, who noted their score and reward choice (rewards were distributed at the end of the lab session). In contrast, for excellence participants in the opportunity-cost-implicit condition, the final screen offered a \$5 cash excellence reward. These participants were also directed to call the experimenter, who noted their score. Importantly, however, upon seeing their score, the experimenter handed these participants a printed page titled “Notice Regarding Cash Reward.” This notice indicated that due to administrative issues, the \$5 cash reward was now in the form of a value-equivalent reward. Participants were then asked to choose either the batteries or the chocolates as their reward for excelling in the study (the description of the two rewards was identical across all four conditions).

With respect to participants in the no-excellence conditions, they, too, saw a screen that displayed their total score after completing the three letter recognition tests. However, this score was real (i.e., no points were added) and no other information was divulged. Next, participants in the no-excellence conditions saw a screen indicating that, as a token of appreciation, a reward is offered “to all participants.” For no-excellence participants in the no-opportunity-cost condition, this final screen offered a choice between the batteries and chocolate rewards. In contrast, for no-excellence participants in the opportunity-cost-implicit condition, the final screen offered a \$5 cash reward. These participants were also directed to call the experimenter, who noted their score, and then handed them the “Notice Regarding Cash Reward.” Thus, participants in this fourth condition eventually also chose between the batteries and the chocolates reward.

After making their reward choices, participants in all conditions received a booklet with process measures and manipulation checks. Specifically, they rated the extent to which it was difficult for them to choose between the batteries and chocolate rewards (using a 7-point scale ranging from (1) “Very easy to choose” to (7) “Very difficult to choose”) and indicated the length of time it took them to make this choice (using a scale starting at “less than 1 second,” and subsequently demarked in increments of one second up to “over 10 seconds”). Next, participants rated their current affect using three 7-point items that measure mood valence (unhappy/happy, pleased/annoyed, and bad/good mood).<sup>2</sup> They then rated the degree to which the letter recognition task was difficult and involved effort for them (both ratings were made on 7-point scales). In addition, as a check for the performance feedback manipulation, participants rated how well they performed in the letter recognition task, using a seven-point scale ranging from (1) “Very poorly” to (7) “Very well.” They were also asked to rate how well they had felt *during* the task about their performance (using a similar 7-point scale).

Participants next received several pages with “filler” problems from unrelated studies. They were then asked to rate their tendency to feel guilt when considering pleasurable luxuries using the seven-point indulgence guilt scale. Finally, before participants were debriefed and thanked, they were probed for suspicion and asked to indicate what they thought was the purpose of the letter recognition study. None suspected that performance level or effort opportunity cost influenced the reward choices or articulated the hypotheses being tested.

## *Results*

### *Manipulation Checks and Process Measures*

As expected, the performance score provided to participants in the excellence conditions was significantly higher than the score provided to participants in the no-excellence conditions

( $M = 166$  vs.  $M = 125$ ;  $t = 4.6$ ,  $p < .001$ ), although there was no significant difference in the true performance of these two groups ( $M = 116$  vs.  $M = 125$ ;  $t = 1.0$ ,  $p > .1$ ). Accordingly, the manipulation of performance feedback produced the expected perceptions, with participants in the excellence conditions rating their performance in retrospect as significantly better than did participants in the no-excellence conditions ( $M = 4.6$  vs.  $M = 4.2$ ;  $t = 2.0$ ,  $p < .05$ ). However, reflecting the lack of difference in true performance, participants in both groups felt equally well about their performance during the tasks themselves ( $M = 4.4$  vs.  $M = 4.2$ ;  $t = .8$ ,  $p > .1$ ).

With regards to participants' effort perceptions, participants in the excellence conditions rated the letter recognition task as directionally less difficult and involving significantly less effort than did participants in the no-excellence conditions ( $M = 3.8$  vs.  $M = 4.0$ ;  $t = 1.0$ ,  $p > .1$  and  $M = 3.7$  vs.  $M = 4.3$ ;  $t = 2.9$ ,  $p < .005$ ; for task difficulty and effort scales, respectively). This pattern, discussed further in the final section, rules out the alternative explanation that choices of indulgence in the excellence condition were due to higher effort perceptions. In addition, choosing between the chocolate and battery rewards was more difficult and took a longer time for participants when the monetary opportunity cost of the task was mentioned rather than omitted ( $M = 3.4$  vs.  $M = 2.4$ ;  $t = 1.9$ ,  $p < .05$  and  $7.8$  vs.  $5.1$  seconds;  $t = 2.3$ ,  $p < .05$ ; for choice difficulty and time, respectively). These findings support the notion that trading off between desire and need is particularly painful when income and monetary resources must be spent. Finally, consistent with hyperopia and the related reluctance to sacrifice virtue and necessity for the sake of indulgence, selecting a reward was more difficult and took more time for participants who chose the chocolates rather than the batteries ( $M = 3.4$  vs.  $M = 2.0$ ;  $t = 2.8$ ,  $p < .01$  and  $7.0$  vs.  $5.4$  seconds;  $t = 1.2$ ,  $p < .15$ ; for choice difficulty and time, respectively).

*Reward Choices*

Supporting the prediction that excellence provides an entitlement to indulge (hypothesis 4), when the opportunity cost of the letter recognition tasks (i.e., \$5) was not mentioned, participants were significantly more likely to choose the chocolates over the batteries in the excellence- than no-excellence condition (75% [27/36] vs. 46% [17/37];  $t = 2.7, p < .005$ ). In contrast, when opportunity cost was suggested, providing (bogus) excellence feedback had no effect on the likelihood of choosing the indulgence reward (45% [15/33] vs. 45% [15/33]). The interaction between performance feedback and opportunity cost was statistically significant ( $t = 1.8, p < .05$ ), indicating that highlighting the fungibility of effort and income neutralizes the entitlement to indulge inherent in excelling in an effort task.

To examine the moderating role of indulgence guilt, we divided participants into two groups, high and low guilt, based on a median split of their indulgence guilt scores (means and standard deviations of guilt scores in the high vs. low guilt groups were 5.6 [ $SD = 1.0$ ] vs. 2.9 [ $SD = .7$ ], respectively). Consistent with the notion that individuals with greater guilt rely more heavily on justification cues, the positive effect of perceived excellence on choosing indulgence was directionally stronger for high than low guilt individuals. Specifically, when the opportunity cost was omitted, excellence compared to no-excellence increased the share of the indulgence reward by 36% in the high guilt group (73% vs. 37%;  $t = 2.5, p < .01$ ) compared to an increase of only 23% in the low guilt group (79% vs. 56%;  $t = 1.4, p < .1$ ). However, the difference in the effect of excellence between the two guilt groups did not reach statistical significance.

*Excellence as a Justification: Discussion*

Study 3 generalized the entitlement route to justifying indulgence by showing that, in addition to investing high effort, excelling also earns the right to indulge. Participants who

erroneously believed that they excelled in an effort task were more likely to select an indulgence reward than participants who performed equally well but did not receive excellence feedback. Consistent with the earlier studies, this effect was more pronounced among higher guilt participants and was eliminated when the monetary opportunity cost of the effort task was suggested.

It is important to consider a possible alternative explanation for the effect of excellence, namely that it induced a happy mood, which in turn increased the tendency to indulge. We therefore examined participant's mood at the end of the letter recognition study by averaging the three 7-point mood items mentioned earlier into a single scale of mood valence ( $\alpha = .83$ ). Although participants in the excellence conditions were indeed happier than participants in the no-excellence conditions (4.9 vs. 4.4;  $t = 1.3$ ,  $p = .1$ ), sadder participants were directionally more likely to choose indulgence. The latter finding is consistent with evidence that people attempt to repair sad mood by indulging in luxuries (e.g., Kivetz & Kivetz, 2004). Thus, mood cannot account for the positive effect of excellence on indulgence and, if anything, made our test more conservative.

#### Implications of the Two Justification Routes for Willingness to Expend Resources

So far, we have focused on choice in situations that involved a tradeoff between indulgence and necessity. However, in many situations, the relevant decision is not which of two rewards to choose, but how much resources to dedicate toward attaining a particular item or experience. Accordingly, in this section, we test the implications of the two justification routes for the willingness to invest different resources in order to obtain either an indulgence or a more prudent necessity.

As discussed earlier, the idea that indulgence needs to be easily justified implies that people will be reluctant to expend resources perceived as income (e.g., money) on indulgence, because such resources give rise to prudential rules and are essential for securing the basic needs of life. In

contrast, spending income (or money) on necessities has an ultimate justification: one just cannot do without them. Thus, we expect that when resources are denominated in a monetary currency people will be willing to pay more for necessities than they will be for items of indulgence.

The entitlement route to justification and the results obtained in studies 1 through 2b suggest that people will be willing to “pay” in effort and to bear increases in such non-monetary costs more readily for indulgences than for necessities. That is, given that people feel entitled to indulge when they earn such indulgence by exerting more effort, we predict that when costs are denominated in an effort currency willingness to pay will be higher for indulgence than it will be for necessity. The discussion leads to the following hypothesis:

**H5:** Willingness to pay in money will be higher for necessity than indulgence, but willingness to pay in effort will be higher for indulgence than necessity.

In the present study, we test hypothesis 5 and the prediction that individuals with high (compared to low) indulgence guilt drive the differential effect of effort versus money on willingness to pay. We manipulate the type of resource by asking respondents to indicate their maximum willingness to pay in terms of either dollars (i.e., money) or participation in surveys (i.e., effort). In a subsequent study, we frame resources as income using a subtler manipulation that holds constant the effort activity but suggests that such effort is often converted into income.

*Study 4: Willingness to Pay for Indulgence and Necessity in Effort versus in Money*

*Method*

The participants in the study were 229 travelers, who were waiting for trains at sitting areas in a major train station. Participants were randomly assigned to one of four conditions in a 2 (resource type: effort vs. money) x 2 (item type: indulgence vs. necessity) between-subjects design. The two items, representing an indulgence and a necessity were, respectively, (a) “a

luxurious one-hour pampering Swedish or Sports massage at any luxury spa” and (b) “a certificate for four haircuts at your favorite neighborhood unisex haircut store.” In the effort conditions, participants were asked to indicate the maximum number of surveys they would be willing to complete in order to earn the described reward (either the massage or the haircuts; manipulated between-subjects). Participants were told that each such survey would be completed over the Internet, would include questions about their preferences and opinions, and would take about 20 minutes to complete. Correspondingly, in the monetary conditions, participants were asked to indicate the maximum dollar amount they would be willing to pay in order to acquire the described item. Then, at the end of the questionnaire, participants in all conditions were asked to rate whether they tended to feel guilty when considering pleasurable luxuries (using the eleven-point indulgence guilt scale).

### *Results*

The results supported hypothesis 5. Specifically, participants’ willingness to pay revealed a significant interaction in the predicted direction between resource and item type ( $F(1, 225) = 3.8, p = .05$ ; normalized scores were used to test this and subsequent interaction effects). When the resource was effort, participants were willing to expend directionally more effort in order to earn the massage than the haircuts (3.6 vs. 2.9 surveys;  $t = .9, p < .2$ ). In contrast, when the resource was money, participants were willing to pay significantly less money to acquire the massage than the haircuts (\$46.2 vs. \$60.1;  $t = 1.8, p < .05$ ).

Because the distribution of willingness to pay (particularly in money) is often positively skewed, we also examined the median willingness to pay in the different between-subjects conditions. Consistent with hypothesis 5, the relative willingness to pay for the indulgence versus the necessity reversed as a function of the resource type. When the resource was effort, participants’

median willingness to pay to earn the massage was two surveys compared to a median willingness to pay of only one survey for the haircuts ( $p = .07$  by Mann-Whitney). In contrast, when the resource was money, participants' median willingness to pay to acquire the massage was \$40 compared to a median willingness to pay of \$48 for the haircuts ( $p < .2$  by Mann-Whitney).

To examine the moderating role of indulgence guilt, we divided participants into two groups, high and low guilt, based on a median split of their indulgence guilt scores (means and standard deviations of guilt scores in the high vs. low guilt groups were 6.2 [ $SD = 1.6$ ] vs. 1.6 [ $SD = 1.4$ ], respectively). As expected, for high indulgence guilt participants, the interaction between item and resource type was statistically significant and in the predicted direction ( $F(1, 117) = 5.1$ ,  $p < .05$ ). Further, as shown in figure 4 (upper panel), for high guilt participants, the simple effects of item type were in the directions predicted by hypothesis 5 in both the money and effort conditions ( $p < .05$  and  $p < .1$ , respectively). In contrast, for low indulgence guilt participants, the interaction between item and resource type did not approach statistical significance ( $F(1, 104) = 0.4$ ,  $p > .5$ ); as shown in figure 4 (lower panel), for these participants, the simple effect of item type was not significant in either the money or the effort condition (both  $p$ 's  $> .1$ ). Finally, as shown in figure 4, similar results were obtained for the median willingness to pay in effort versus in money. Thus, the findings support the prediction that individuals who suffer from stronger indulgence guilt drive the differential effect of effort versus money on willingness to pay.

#### *Study 5: The Impact of Perceiving Effort as Income on Willingness to Expend Resources*

The previous study demonstrated that people are willing to invest more effort to earn an indulgence rather than a necessity, but are willing to pay more money to acquire that necessity rather than the indulgence. This result was predicted based on the notion that expending effort makes it easier to justify indulging, whereas spending money or income makes it more difficult.



Although the findings of study 4 are consistent with the proposed justification routes, one might argue that restricting out-of-pocket monetary spending on indulgence is a reasonable (and normative) strategy, given that such expenditures directly reduce disposal income. Nevertheless, it is important to recognize that effort is often transformed into money and income, for example through salaried labor. Considered in that light, the observed differences in the impact of money versus effort on the willingness to pay for indulgence and necessity is quite striking. Still, a question that naturally arises is whether the resource-based reversals in willingness to pay would occur when the resource expended is held constant, thus ruling out the possibility of any confounds due to the use of objectively different resources (i.e., effort versus money). Accordingly, in this study, we investigate the implications of the two justification routes using a subtler manipulation of resource type. Specifically, we examine willingness to pay in a single *effort* activity. To induce a monetary or income mindset, we imply that the effort has a monetary opportunity cost (i.e., can generate income). We expect that, as in study 4, participants will be willing to expend more effort in order to earn the indulgence than the necessity; however, consistent with the notion that it is difficult to justify spending resources perceived as income on indulgence, we predict a diametrically opposed effect when the opportunity cost of the effort activity is suggested (i.e., when the fungibility of effort and income is highlighted). Thus:

H6: Willingness to expend effort will be higher for indulgence than necessity, but when the monetary opportunity cost of effort is suggested, willingness to expend effort will be higher for necessity than indulgence.

In addition to using a subtler manipulation of perceived resource, the present study seeks to generalize the results of study 4 by employing a different effort activity (i.e., solving anagrams), indulgence and necessity rewards, and sample (i.e., students as opposed to travelers).

Moreover, to allow for a more realistic test of the hypothesis, the participants in the present study were asked to make decisions with real potential consequences.

### *Method*

The participants were 116 students at a large East Coast university. Participants were randomly assigned to one of four conditions in a 2 (effort opportunity cost: implied vs. not implied) x 2 (reward type: indulgence vs. necessity) between-subjects design. The two rewards, representing an indulgence and a necessity were, respectively, (a) “a \$50 video certificate good for DVD/VHS video purchases or rentals at Blockbuster or Kim’s Video – give yourself a treat!” and (b) “a \$50 certificate good for textbooks and school supplies at Columbia University Bookstore – savings for school!”

In all conditions, participants were told that the researchers were planning to conduct a word anagram study in the near future. Participants were asked to complete a questionnaire that was described as part of an attempt to determine the appropriate reward level for this upcoming study.

In the conditions in which the opportunity cost of effort was implied, participants were informed that in past anagram studies conducted in the lab the standard payment rate was \$0.5 per anagram. They were told that the researchers decided to use different rewards in future anagram studies. In the conditions in which the opportunity cost of effort was not implied, no mention was made of any previous anagram studies or their (monetary) compensation.

Next, participants in all conditions were given an example of one anagram, its correct solution, and an invalid solution. They were then shown the aforementioned indulgence or necessity reward (manipulated between-subjects) and were asked to indicate the maximum number of anagrams they were willing to solve (i.e., unscramble) in order to earn that reward. Finally, before participants in all four conditions were debriefed and thanked, they were probed

for suspicion and asked to indicate what they thought was the purpose of the study. None suspected that the study was related to different resources or the opportunity cost of effort, or articulated the hypotheses being tested.

### *Results*

The results supported hypothesis 6. Specifically, participants' willingness to expend effort revealed a significant interaction in the predicted direction between item type and effort opportunity cost ( $F(1, 112) = 8.5, p < .005$ ). When the opportunity cost of effort (i.e., \$0.5/anagram) was not mentioned, participants were willing to expend significantly more effort in order to earn the video certificate than the school supplies certificate (102 vs. 48 anagrams;  $t = 2.8, p < .005$ ). In contrast, when the opportunity cost of effort was suggested, participants were willing to expend directionally less effort in order to earn the video certificate than the school supplies certificate (53 vs. 70 anagrams;  $t = 1.2, p < .15$ ).

It is important to note that the observed results cannot be explained as a consequence of participants calculating the adequate number of anagrams by using the item's monetary value and the typical anagram wage. First, such an alternative explanation does not predict the observed reversal in willingness to invest effort and the related simple effects. Second, this alternative explanation implies that participants' willingness to solve anagrams should be closer to 100 in the opportunity-cost-implied conditions (because \$50-per-item divided by \$0.5-per-anagram equals 100 anagrams). In actuality, however, participants in the no-opportunity-cost conditions indicated a mean willingness to solve anagrams ( $M = 74$ ) that was closer to 100 than did those in the opportunity-cost-implied conditions ( $M = 62$ ). Finally, in study 4, we obtained a similar reversal in willingness to invest resources without providing respondents with the monetary value of the indulgence and necessity items.

*Implications of the Justification Routes for Willingness to Expend Resources: Discussion*

The results of studies 4 and 5 underscore the consequences of the two justification routes for the decision to indulge. Consistent with the notion that investing effort makes it easier to justify indulging, decision-makers were willing to exert more effort for the sake of indulgence than necessity. However, when resources were framed as income, decision-makers were willing to pay less for indulgence than necessity. This latter finding is consistent with the idea that spending money and income on indulgence is difficult to justify. Study 4 showed that the reversal in willingness to pay as a function of the invested resource is due to individuals who experience stronger indulgence guilt. Apparently, such individuals have a harder time balancing their desires and needs, and thus, are more sensitive to factors that affect the ease of justifying indulgence. Study 5 demonstrated that reversals in willingness to pay occur even when the actual resource being invested (i.e., effort) is held constant and the interchangeability of effort and income is made more or less transparent.

## General Discussion

Extensive research in psychology, behavioral economics, and other related disciplines has examined choices between immediate pleasures (e.g., indulgences, vices, and hedonic luxuries) and what are typically considered more farsighted options (e.g., virtues, savings, and utilitarian necessities). Such choices often give rise to intra-personal conflict and proceed by heuristic justification rather than calculated and deliberate decision-making. Building on prior research, we proposed two key determinants of the ease of justifying indulgence. This section summarizes our research, discusses its implications for the mental accounting of different mediums, and explores how the two routes to justifying indulgence can account for the findings of prior research.

*Dimensions of Justifications to Indulge*

Our studies tested the idea that the decision to indulge is influenced by salient cues that affect the ease of justification. Two main types of cues were investigated, involving feelings of entitlement and perceptions of the resource being invested. Consistent with entitlement, participants were more likely to select indulgence over necessity when earning a reward for expending high effort or (supposedly) excelling in a task. Consistent with the priming of prudence by resources perceived as income, the effects of high achievement and effort were attenuated and even reversed when the monetary opportunity cost of the effort activity was suggested. Relatedly, a higher willingness to pay for items of indulgence than necessity was found when the resource expended was effort, but the reverse was true when the resource was perceived as income. Finally, the aforementioned effects were stronger for participants who typically experience greater guilt about indulging. These findings, which were replicated across a wide variety of indulgences and experimental tasks, shed light on the antecedents of justification and the psychology of indulgence.

*The Nature of the Justification Process*

The results suggest that justification to indulge is a multi-dimensional construct, where different justification cues interact with one another. Such interactions can be either counteractive or compensatory, depending on the consistency and saliency of the relevant cues. Suggestive of counteractive processes among cues, the positive effect of entitlement on indulgence was negated by priming the fungibility of effort and income. Suggestive of compensatory processes, studies 2 and 3 indicated that the absence of one justification cue could be offset by the presence of another. In particular, in studies 2a and 2b, participants in the low-effort conditions who solved more anagrams were significantly more likely to choose indulgence rewards; apparently, excelling in the anagram tasks compensated for the low effort involved and was sufficient to justify indulging.

Correspondingly, in study 3, participants in the no-excellence condition who perceived themselves as investing more effort were directionally more likely to indulge; for these participants, expending high effort seems to have compensated for a lack of perceived excellence.

The findings also suggest that justifying indulgence consists of an implicit search for a sufficient but not necessary cue. Specifically, the absence of a particular justification (say excellence) does not preclude indulging if another positive cue is present (say high effort). It should be noted, however, that negative (or absent) justification cues could also influence decision-making, particularly when they are psychologically salient. For example, highlighting the fungibility of effort and income was found to depress the tendency to indulge. Future research could examine the effects of emphasizing other negative cues (e.g., “you did *not* work hard”).

Decision-makers seem particularly sensitive to the salience of available cues during the time of choice. For example, in studies 2a and 2b, participants in the higher effort conditions performed worse (i.e., solved *fewer* anagrams because they were required to find more words per anagram). Nevertheless, high-effort participants selected more indulgence, consistent with the notion that in these studies the effort cue overshadowed the performance cue, which lacked a well-defined reference (e.g., the number of correct anagrams that constitute excellence). Correspondingly, in study 3, participants in the excellence compared to no-excellence condition perceived their effort to be lower, yet chose more indulgence. Here, the excellence cue was very salient during choice (it included explicit feedback with an inflated score and a favorable comparison to others), whereas the effort signal was implicit, weak, and evoked only after participants made their choice. Future research could investigate the interaction of multiple justification dimensions, for example by systematically varying the consistency and saliency of different cues.

*The Automaticity of Justification and Indulgence*

An important question is whether decision-makers are conscious of the influence of justification cues on their tendency to indulge. The present studies indicate that the reliance on the two routes to justifying indulgence may not be intentional. Specifically, neither participants' explanations of their reward choices nor their comments during the debriefing procedure revealed any sign of awareness of employing a justification cue. People make choices *as if* they ask themselves "Can I justify indulging?" but they do not necessarily engage in a deliberate justification process.

The fact that participants did not report being influenced by justification cues is consistent with evidence that people are often unaware of the factors underlying their preferences (e.g., Nisbett & Wilson, 1977). In that respect, the reliance on the two justification routes is similar to the automatic use of heuristics. For example, people relying on such heuristics as "anchoring and insufficient adjustment" (Tversky & Kahneman, 1974) or the "affect heuristic" (Slovic et al., 2002) and the "How do I feel about it?" heuristic (Schwarz, 1990; Schwarz & Clore, 1983) are not aware that an arbitrary anchor or their current mood is biasing their judgments and predictions. While decision-makers do not deliberately employ such heuristic principles, the relevant cue (e.g., an anchor, a transitory mood, a symbol of excellence) must be salient enough to influence judgment and choice. Relatedly, it is important to distinguish the operation of the highlighted justification routes, which antecede the decision to indulge, from other types of justifications and motivated reasoning and judgment that operate ex-post after a tentative judgment or preference has been formed (e.g., Festinger, 1957; Kruglanski, 1990; Kunda, 1990).

*The Impact of Justifications to Indulge on Decision Quality and Satisfaction*

An interesting question, which merits future research, regards the impact of the two justification routes on decision quality and post-choice satisfaction. On the one hand, similar to judgment heuristics, these justification routes can lead to systematic biases and counter-normative decision-making (e.g., Kahneman, Slovic, and Tversky, 1982). In particular, relying on the various justification cues gives rise to preference inconsistency and violations of independence (e.g., Loewenstein & Prelec, 1993), whereby choice between alternatives depends on elements (such as effort and excellence) that are both common and irrelevant to the consumption of either alternative. On the other hand, relying on the justification routes reduces the complex and emotional tradeoff between desire and prudence to a simpler rule-based decision, and as such, can streamline decision-making. Further, for hyperopic people who tend to chronically under-indulge, justification cues such as entitlement may offer an opportunity to attain hedonic experiences without anticipatory or consumption guilt. Alternatively, for those susceptible to (myopic) self-control failures and subsequent regret, justification concerns might adequately restrict indulgence to situations that afford a salient justification cue. Thus, the investigated routes to justifying indulgence may offer an alternative mechanism --- that replaces a normative cost-benefit analysis --- for balancing wants and needs and maximizing long-term satisfaction.

*The Mental Accounting of Mediums: The Interplay between Effort, Income, and Rewards*

The present research has important implications for mental accounting (Thaler 1985) and its interaction with the concept of medium or currency (for additional discussion of the impact of mediums on decision-making, see Hsee, Yu, & Zhang, 2003; van Osselaer, Alba, & Manchanda, 2004). Perhaps the most fundamental medium is money or income, which often --- but not always --- intermediates effort with consumption choices (as in salaried labor). Our findings



indicate that the presence of a monetary medium can substantially alter preference, even when such a medium is merely evoked as a counterfactual. Higher effort enhanced choices of indulgences over necessities, but this effect reversed when participants were reminded of the possibility of converting effort into income. Willingness-to-pay was higher for indulgences than necessities when the invested resource was framed as effort; however, the opposite was observed when the currency was money or the interchangeability of effort and income was suggested.

The results also indicate that the perception of a monetary medium interacts with the level of effort in determining the decision to indulge. On the one hand, consumption choices that were perceived as contingent on hard-earned income favored necessities, consistent with the difficulty of justifying spending such income on indulgence. On the other hand, when the effort requirements were low, highlighting the fungibility of effort and income increased indulgence, a result that may be due to perceiving such “easy” money as a windfall gain.

An important question is what determines whether (effort-contingent) rewards and income will be classified in the same mental account. Our studies highlighted one such factor, namely the presence of a reminder that effort is often converted into income (i.e., providing information on the typical wage for the effort task). Another determinant of the association between rewards and income may be whether the rewards are the primary or secondary motivation for engaging in the effort. When extrinsic rewards are the sole output of the effort activity, these rewards can be viewed as the income or earning from the effort investment. In contrast, when there is other salient recompense for expending effort (e.g., cash), the additional rewards will be perceived as a byproduct of investing effort rather than as its consequent income. Thus, the positive effect of effort on the preference for indulgence rewards should be stronger when such rewards are *not* the primary motivation for expending the effort, that is, when the fruits of effort are dissociated from income.

This prediction is consistent with the findings from several (unpublished) studies, in which we manipulated whether the effort-contingent rewards were the secondary or primary motivation for engaging in the effort. Such manipulations included whether or not investing the effort provided, in addition to a choice between indulgence and necessity rewards, (a) direct cash compensation, (b) course credit, or (c) intrinsic motivation (e.g., helping a close friend). In all cases, effort had a stronger positive effect on the preference for indulgence when rewards were byproducts of investing effort. For example, in one study, respondents chose between groceries and a gourmet dinner for two (i.e., a necessity vs. an indulgence, respectively). Compared to the baseline preference between these two items (where 55% [28/51] of respondents chose the dinner), presenting these items as rewards for expending effort (i.e., completing five online surveys) enhanced the preference for the indulgence item to 64% [30/47;  $p > .1$ ] and 81% [38/47;  $p < .005$ ] when the rewards were primary and secondary, respectively. This pattern is consistent with the notion that investing effort provides an entitlement to sacrifice necessity in favor of pleasure. More importantly, these results indicate that the tendency to indulge was significantly greater when the reward was the secondary rather than primary reason for investing the effort ( $p < .05$ ). Apparently, earning secondary rewards activates both routes to justifying indulgence by simultaneously requiring effort and conserving income.

#### *The Role of the Routes to Justifying Indulgence in Prior Research*

The two routes to justifying indulgence can explain previous findings, whereby individuals require “extenuating circumstances” to allow themselves to enjoy the pleasures of life. For example, as reviewed earlier, the tendency to select hedonic luxuries over utilitarian necessities was found to be greater for consumers who participated in more challenging frequency programs (Kivetz & Simonson, 2002b) and for people who chose between windfall (i.e., free) as opposed to

purchased (i.e., costly) options (O'Curry & Strahilevitz, 2001). Both findings can be interpreted as suggesting that decision-makers rely on justification cues, whereby the investment of effort (in frequency programs) versus money (in purchases) makes it easier versus harder (respectively) to justify indulging. Other research has shown that promised donations to charity are more effective in promoting luxuries than necessities (Strahilevitz & Myers, 1998), which suggests that donating (and possibly other virtuous acts) provide an entitlement to indulge.

Ferraro, Shiv, and Bettman (2004) recently demonstrated that awareness of one's mortality leads to indulgent as opposed to healthy food choices. As hinted by the title of their article ("Let Us Eat and Drink, For Tomorrow We Shall Die [Isaiah xxii.13]..."), an entitlement-based justification may contribute to such an effect, as mortality salience may serve as an excuse to indulge. Relatedly, the literature on mood regulation demonstrates that sad compared to neutral mood enhances the likelihood of seeking immediate gratification (e.g., Baumann, Cialdini, & Kendrick, 1981). Here, too, entitlement-based justification may play a role, insofar that attempts to repair negative mood offer a license to indulge.

The present research suggests that people will be more likely to choose indulgence when the decision is framed narrowly, as a relatively unique event (Kahneman & Lovallo, 1993; Prelec & Herrnstein, 1992b; Read, Loewenstein, & Rabin, 1999). Specifically, it is easier to justify indulging when the inherent "sin" is construed as singular and/or occurs outside of one's regular life (see also Thaler, 1985). Thus, opportunities to indulge that are perceived as special, with respect to time and/or location, may seem particularly justifiable. This intuition may have motivated the restaurant [and shop] owners at the San Francisco International Airport to post such signs as "on vacation, off the diet [budget]." Similarly, a special and infrequent event like a birthday, holiday, or graduation may provide an excuse ("just this time") or an entitlement ("I deserve it") to indulge.

The greater ease of justifying indulgence in narrow, isolated decisions may have contributed to the interesting findings of Read, Loewenstein, and Kalyanaraman (1999). These researchers found that the tendency to select vices over virtues (e.g., lowbrow over highbrow movies) across a set of three choices was higher when choices were sequential rather than simultaneous, that is, when each of the three choices was construed as a separate decision rather than as a case among a series of similar decisions. Although this result can be explained using hyperbolic discounting (Ainslie, 1975) and variety seeking (Simonson, 1990), it is possible that participants found it easier to justify indulging when they made sequential choices, because each selection of vice could be excused as a one-time transgression.

The two routes to indulgence can also help explain Wertenbroch's (1998) finding that people strategically limit the quantity and size of purchased vices (e.g., buying fewer cigarettes at a higher per-unit price). Similar to a one-time decision to indulge, it is easier to justify the acquisition of smaller rations of vice ("a little indulgence can't hurt"). Smaller purchases of indulgences are also easier to justify because they are cheaper and do not materially deplete available income and monetary resources. Current ads by Godiva exploit this built-in justification of minor, inexpensive indulgences: "Give yourself a treat for only \$2.50."

Finally, a view of indulgence as dependent on ease of justification can account for preference reversals between separate- and joint-evaluations of indulgences versus necessities as well as of indulgences versus cash awards (Kivetz & Simonson, 2002a). In particular, while in choice people prefer either necessities or cash over indulgences, in separate-evaluations they exhibit more positive evaluations of indulgences than either necessities or cash. Such preference reversals are consistent with a justification process because in choice indulging explicitly requires sacrificing virtuous options, and therefore, is harder to justify than in separate-

evaluations. The interpretation of preference reversals as emanating from ease of justification has much in common with the want/should distinction put forth by Bazerman et al. (1998).

Future research could investigate the aforementioned and new varieties of justification. For example, social comparison processes triggered by the conspicuous consumption of others may provide an entitlement to indulge, à la “keeping up with the Joneses” (see also Hoch & Loewenstein, 1991; Schor, 1999). More research is needed to further improve our understanding of the affective, cognitive, and motivational processes involved in the interplay between self-control, justification, and indulgence. Future research could examine factors that affect the weight of justification in the decision to indulge. For example, researchers can investigate various context and task characteristics, such as category of experience or consumption, cognitive and motivational resources, and psychological distance (e.g., Sagristano, Trope, & Liberman, 2002; Trope & Liberman, 2003). It is also important to investigate the role of relevant individual differences, including prevention versus promotion orientation (e.g., Liberman et al., 1999), awareness of self-control problems, time-perspective, religious beliefs, and cultural norms.

## References

- Ainslie, G. (1975). Specious reward: A behavioral theory of impulsiveness and impulse control. *Psychological Bulletin*, *82*, 463-496.
- Arkes, H. R., Joyner, C. A., Pezzo, M. V., & Nash, J. G. (1994). The psychology of windfall gains. *Organizational Behavior and Human Decision Processes*, *59*, 331-347.
- Baumann, D. J., Cialdini, R. B., & Kendrick, D. T. (1981). Altruism as hedonism: Helping and self-gratification as equivalent responses. *Journal of Personality & Social Psychology*, *40*, 1039-1046.
- Bénabou, R. & Tirole, J. (2004). Willpower and personal rules. *Journal of Political Economy*, *112*, 848-886.
- Bazerman, M. H., Tenbrunsel, A. E., & Wade-Benzoni, K. A. (1998). Negotiating with yourself and losing: Understanding and managing conflicting internal preferences. *Academy of Management Review*, *23*, 225-241.
- Berry, C. J. (1994). *The idea of luxury: A conceptual and historical investigation*. NY: Cambridge.
- Dhar, R. and Simonson, I. (1999), "Making complementary choices in consumption episodes: Highlighting versus balancing," *Journal of Marketing Research*, *36*, 29-44.
- Elster, J. (1979). *Ulysses and the sirens: Studies in rationality and irrationality*. NY: Cambridge.
- Ferraro, R., Shiv, B., & Bettman, J. R. (2004). Let us eat and drink, for tomorrow we shall die (Isaiah xxii.13): Mortality salience and indulgent food choices. Duke University working paper.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Oxford, England: Row, Peterson.
- Giner-Sorolla, R. (2001). Guilty pleasures and grim necessities: Affective attitudes in dilemmas of self-control. *Journal of Personality & Social Psychology*, *80*, 206-221.

- Hoch, S. J., & Loewenstein, G. F. (1991). Time-inconsistent preferences and consumer self-control. *Journal of Consumer Research*, *17*, 492-507.
- Houston, D.A., Sherman, S.J. & Baker, S.M. (1991). Feature matching, unique features, and the dynamics of the choice process: Predecision conflict and postdecision satisfaction. *Journal of Experimental Social Psychology*, *27*, 411-430.
- Hsee, C. K., Yu, F., Zhang J., & Zhang, Y. (2003). Medium maximization. *Journal of Consumer Research*, *30*, 1-14.
- Kahneman, D., Slovic, P., & Tversky, A. (1982). *Judgment under uncertainty: Heuristics and biases*. New York: Cambridge University Press.
- Kahneman, D., & Lovallo, D. (1993). Timid choices and bold forecasts: A cognitive perspective on risk taking. *Management Science*, *39*, 17-31.
- Kemp, S. (1998). Perceiving luxury and necessity. *Journal of Economic Psychology*, *19*, 591-606.
- Kivetz, R. & Kivetz, Y. (2004). Reconciling mood congruency and mood regulation: The role of psychological distance. Columbia University working paper.
- Kivetz, R. & Simonson, I. (2002a). Self-control for the righteous: Toward a theory of precommitment to indulge. *Journal of Consumer Research*, *29*, 199-217.
- Kivetz, R. & Simonson, I. (2002b). Earning the right to indulge: Effort as a determinant of customer preferences towards frequency program rewards. *Journal of Marketing Research*, *38*, 155-170.
- Kruglanski, A. W. (1990). Motivations for judging and knowing: implications for causal attribution. In E.T. Higgins, & R.M. Sorrentino (Eds.), *The Handbook of Motivation and Cognition: Foundations of Social Behavior* (Vol. 2, pp. 333-368). New York: Guilford Press.
- Kunda, Ziva (1990), "The case for motivated reasoning," *Psychological Bulletin*, *108*, 480-98.

- Liberman, N., Idson, L. C., Camacho, C. J., & Higgins, E. T., (1999). Promotion and prevention choices between stability and change. *Journal of Personality & Social Psychology*, 77, 1135-45.
- Lipsey, R. G. (1989). *An Introduction to Positive Economics* (7<sup>th</sup> ed.). London, England: Weidenfeld and Nicolson.
- Loewenstein, G. F. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior & Human Decision Processes*, 65, 272-292.
- Loewenstein, G. F., & Prelec, D. (1993). Preferences for sequences of outcomes. *Psychological Review*, 100, 91-108.
- Maslow, A. H. (1970). *Motivation and personality* (2<sup>nd</sup> ed.). New York: Harper and Row.
- Metcalf, J. & Mischel, W. (1999). A hot/cool-system analysis of delay of gratification: Dynamics of willpower. *Psychological Review*, 106, 3-19.
- Mischel, W. (1981). Metacognition and the rules of delay. In J. Flavell, & L. Ross (Eds.), *Cognitive social development: Frontiers and possible futures* (pp. 240-271). New York: Cambridge University Press.
- Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, 84, 231-259.
- O'Curry, S. & Strahilevitz, M. (2001). Probability and mode of acquisition effects on choices between hedonic and utilitarian options. *Marketing Letters*, 12, 37-49.
- Prelec, D. & Herrnstein, R. J. (1991). Preferences or principles: Alternative guidelines for choice. In R. J. Zeithauser (Ed.), *Strategy and choice* (pp. 319-340). Cambridge, MA: MIT.
- Prelec, D. & Herrnstein, R. J. (1992a). A theory of addiction. In G. Loewenstein, & J. Elster (Eds.), *Choice over time*. New York: Sage.



- Prelec, D. & Herrnstein, R. J. (1992b). Melioration. In G. Loewenstein, & J. Elster (Eds.), *Choice over time*. New York: Sage.
- Prelec, D. & Loewenstein, G. (1998). The red and the black: Mental accounting of savings and debt. *Marketing Science*, *17*, 4-28.
- Read, D., Loewenstein, G., & Kalyanaraman, S. (1999). Mixing virtue and vice: The combined effects of hyperbolic discounting and diversification. *Journal of Behavioral Decision Making*, *12*, 257-73.
- Read, D., Loewenstein, G., & Rabin, M. (1999). Choice bracketing. *Journal of Risk and Uncertainty*, *19*, 171-179.
- Sagrignano, M. C., Trope, Y., & Liberman, N., (2002). Odds now, money later: Temporal distance effects on weighting risk and outcomes in positive bets: A Temporal construal perspective. *Journal of Experimental Psychology: General*, *131*, 364-376.
- Schelling, T. C. (1992). Self-command: A new discipline. In G. Loewenstein, & J. Elster (Eds.), *Choice over time* (pp. 167-176). New York, NY: Sage.
- Schor, J. B. (1999). *The overspent american: Why we want what we don't need*. NY: HarperCollins.
- Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2; pp. 527-561). New York: Guilford Press.
- Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgment of well-being: Informative and directive functions of affective states. *Journal of Personality & Social Psychology*, *45*, 513-523.
- Scitovsky, T. (1992). *The joyless economy* (revised ed.). NY: Oxford.
- Shafir, E., Simonson, I. & Tversky, A. (1993). Reason-based choice. *Cognition*, *49*, 11-36.

- Shah, J., Higgins, E. H., & Friedman, R. S. (1998). Performance incentives and means: How regulatory focus influences goal attainment. *Journal of Personality & Social Psychology*, *74*, 285-293.
- 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., & 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, & D. Kahneman (Eds.), *Heuristics and biases: The psychology of intuitive judgment* (pp. 397-420). New York: Cambridge University Press.
- Slovic, P., & MacPhillamy, D. J. (1974). Dimensional commensurability and cue utilization in comparative judgment. *Organizational Behavior and Human Performance*, *11*, 172-194.
- Strahilevitz, M., & Myers, J. G. (1998). Donations to charity as purchase incentives: How well they work may depend on what you are trying to sell. *Journal of Consumer Research*, *24*, 434-46.
- Strotz, R. H. (1955). Myopia and inconsistency in dynamic utility maximization. *Review of Economic Studies*, *23*, 165-180.
- Thaler, R. H. (1985). Mental accounting and consumer choice. *Marketing Science*, *4*, 199-214.
- Thaler, R. H., & Shefrin, H. M. (1981). An economic theory of self-control. *Journal of Political Economy*, *89*, 392-410.

Trope, Y., & Fishbach, A. (2000). Counteractive self-control in overcoming temptation. *Journal of Personality & Social Psychology*, 79, 493-506.

Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review*, 110, 403-421.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185, 1124-1131.

van Osselaer, S. M. J., Alba, J. W., & Manchanda, P. (2004). Irrelevant information and mediated intertemporal choice. *Journal of Consumer Psychology*, 14, 257-270.

Weber, M. (1958), *The protestant ethic and the spirit of capitalism*. New York: Scribner's Press.

## Footnotes

<sup>1</sup> The stimuli used in this and subsequent studies were selected based on three pretests. In one pretest, 30 respondents were presented with a series of choices between two items and were asked to indicate which item they think would be chosen by (a) a self-indulgent person, who does not consider the negative consequences of actions in the long-run; (b) a person who is most concerned about his/her immediate pleasure; (c) a prudent person who considers long-term goals; and (d) a person who is most concerned about the future. In all cases, the items designated as indulgence/vice or as prudent/virtue were perceived as such by respondents. Specifically, a significant majority of respondents indicated that vices would be chosen by a self-indulgent person who is concerned with immediate pleasure and that virtues would be chosen by a prudent person who is concerned with the future. In a second pretest, 31 respondents rated each item on a luxury-necessity scale (using definitions from Webster's Third New International Dictionary, 1986), whereas in a third pretest 32 respondents rated these items on a hedonic-utilitarian scale. The results indicated that the items designated as luxury/hedonic or as necessity/utilitarian were rated as such by respondents. Moreover, the ratings revealed that items perceived as indulgence/vice (based on the first pretest) were considered luxury/hedonic and that items perceived as prudent/virtue were considered necessity/utilitarian. Although the observed correspondence between the different dimensions may not generalize to the entire universe of items, in most cases, including the stimuli used in the present research, indulgences and vices are relatively more hedonic and luxurious, whereas virtuous and prudent alternatives are relatively more utilitarian and necessary.

<sup>2</sup> The difficulty and time of choice measures and the mood items were mistakenly omitted for some participants.

FIGURE 1: THE IMPACT OF INDULGENCE GUILT IN STUDY 2A

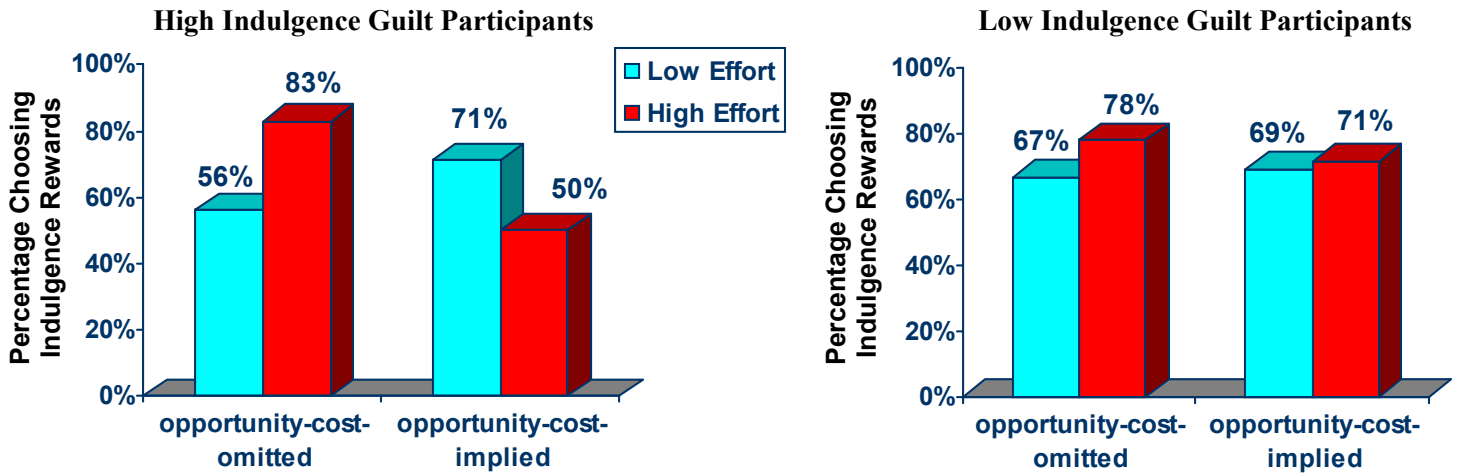


FIGURE 2: THE IMPACT OF INDULGENCE GUILT IN STUDY 2B

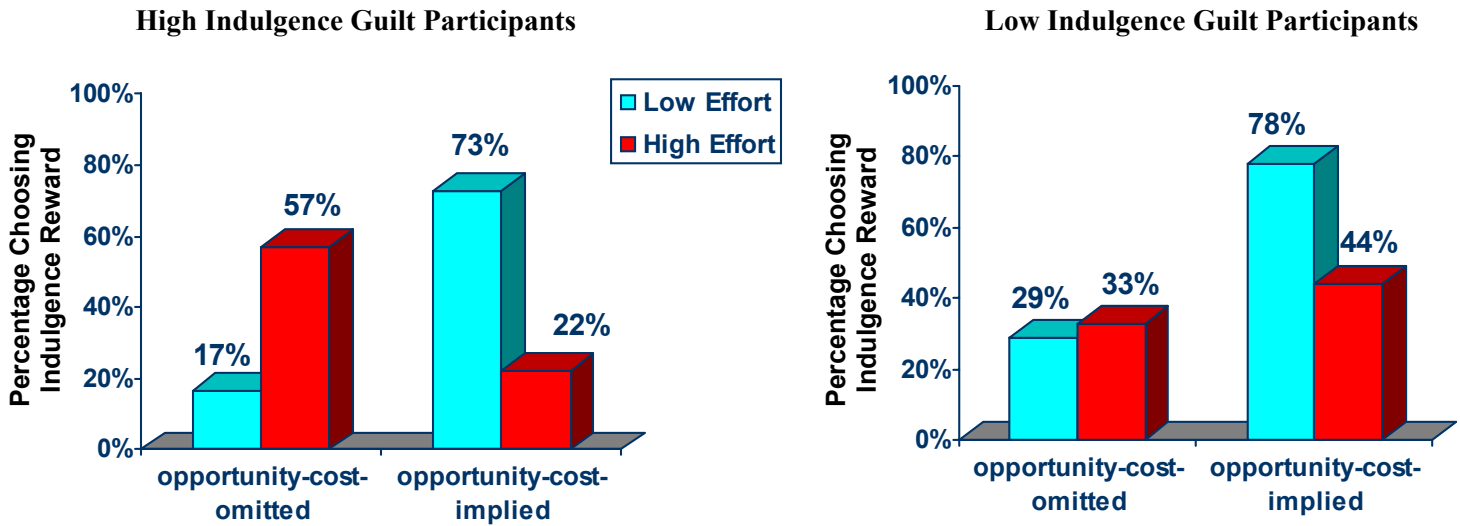


FIGURE 3: THE COMPUTERIZED LETTER RECOGNITION TASK (STUDY 3)

Instructions for the First Test in the Computerized Letter Recognition Task

**Task 1**

This is the first actual task. **Please read the following instructions (with *new rules!*) carefully before you start Task 1.**

In this task, **fifty letters** will be displayed one after the other, each letter for **2 seconds**.

For this task, the following table (*new rules!*) details which key you need to press in response to which letter:

If the letter displayed on the screen is:	Then you need to press:	If you press the correct key	If you press the wrong key	If you do not press any key
<b>z</b>	↑ (the up-arrow key)	You <b>gain</b> 2 points	You <b>lose</b> 2 points	You <b>lose</b> 1 point
<b>s</b>	↓ (the down-arrow key)			
<b>k</b>	← (the left-arrow key)			
<b>w</b>	→ (the right arrow key)			
<b>All other letters</b>	Press the <b>space key</b>	You <b>gain</b> 1 point	You <b>lose</b> 2 points	You <b>lose</b> 1 point

Click on the button below to start Task 1. For your convenience, the relevant letters and corresponding keys will also be displayed during the task.

**start task 1**

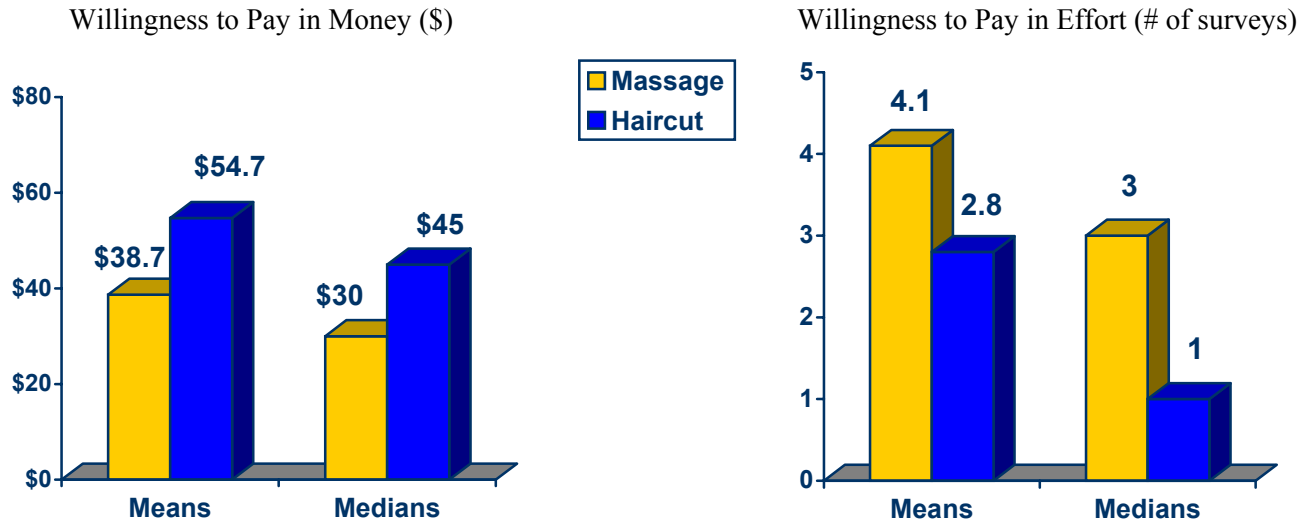
Interface used in the Letter Recognition Task

z - UP   s - DOWN   k - LEFT   w - RIGHT   others - SPACEBAR

a

FIGURE 4: THE IMPACT OF INDULGENCE GUILT ON WILLINGNESS TO PAY IN EFFORT VERSUS MONEY (STUDY 4)

**High Indulgence Guilt Participants**



**Low Indulgence Guilt Participants**

