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Determinants of Justification and Self-Control

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The authors propose that people use 2 routes in justifying self-gratification: 1st through hard work or excellence (entitlement) and the 2nd through the attainment of vices without depleting income. This framework was tested using real tasks and choices adopted from prior research on self-control. The results indicate that (a) higher effort and (bogus) excellence feedback increase preferences for vice rewards, but these effects are reversed or attenuated when the interchangeability of effort and income is implied; (b) willingness to pay in effort is greater for vices than virtues, but willingness to pay in income is higher for virtues; and (c) these effects are magnified among individuals with stronger (chronic or manipulated) guilt. The authors discuss the ability of the justification routes to explain the findings of prior self-control research.

Keywords: entitlement, guilt, hyperopia, justification, self-control

Choices between immediate temptations and long-term goals are ubiquitous in both mundane and critical decisions. The manner in which people resolve such dilemmas is a central question in the voluminous, interdisciplinary research on self-control and intertemporal choice. Although the extant literature focuses on myopia (i.e., shortsightedness or present-biased preferences; e.g., Ainslie, 1975; Fujita, Trope, Liberman, & Levin-Sagi, 2006; Herrnstein & Prelec, 1992b; Loewenstein, 1996; Metcalfe & Mischel, 1999; Schelling, 1992; Trope & Fishbach, 2000), an alternative perspective suggests that people also experience a reverse self-control problem, namely, excessive farsightedness and overcontrol, or *hyperopia* (Kivetz & Keinan, 2006; Kivetz & Simonson, 2002b). This concept can have important implications for the understanding of decisions and value trade-offs that have been studied in areas such as social, clinical, and developmental psychology; judgment and decision making; economics and marketing; and political science.

Hyperopia and common sense suggest that people will allow themselves to relax their self-control and select vices (which provide immediate pleasure) over virtues (which enhance long-term goals) when they have a compelling justification. Without a justification, engaging in self-gratification may evoke guilt (e.g., Giner-Sorolla, 2001). However, a critical question that has not yet been studied is how such justifications are constructed. Accordingly, our main goal in the present research is to investigate the antecedents of justification and their impact on self-control.

Building on prior analyses in the social sciences (e.g., Kivetz & Simonson, 2002a; Maslow, 1970; Scitovsky, 1992; Weber, 1958), we propose two (seemingly) contradictory routes to justifying self-gratification: the first through hard work or excellent performance (i.e., an entitlement or deservingness justification) and the second through the attainment of vices without depleting income. A synthesis of these two routes suggests that the preference for vice over virtue will increase with the expending of resources perceived as effort but will decrease with the expending of resources perceived as income or money. We test this and other related propositions in a series of studies with real effort activities (e.g., completing a computerized letter recognition task) and real choices between relative virtues and vices.

Studies 1A–1C show that perceiving oneself as having invested greater effort increases the likelihood of choosing (a) to subsequently participate in a fun study with no delayed benefits rather than in a painful self-assessment study with long-term benefits, (b) lowbrow over highbrow movies, and (c) a chocolate cake over a healthier fruit salad. It is important to note that these self-control dilemmas were adopted from prior research on self-control. In Study 2, we manipulated participants' "self-control guilt" and found that stronger emotions of guilt magnify the impact of effort on subsequent self-control decisions. This finding is consistent with the conceptual framework because it implies that a greater need to justify self-gratification sensitizes people to the presence of entitlement cues.

In Study 3, we tested our conceptualization that effort and income have diametrically opposed effects, such that expending effort makes it easier to justify self-gratification whereas spending income makes it more difficult. We found that although greater effort increases choices of vice, this effect reverses when the interchangeability of effort and income is implied. Study 4 extends

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the entitlement justification by showing that providing (bogus) excellence feedback on an effort task increases choices of vice rewards. In the last two studies, we investigated the implications of the justification routes for willingness to expend different resources to attain either vices or virtues. In particular, Study 5 shows that people are willing to pay in effort more for vice than for virtue but are willing to pay in money less for vice than for virtue. In Study 6, we generalized this finding by holding constant the actual resource investment and framing it as either effort (solving anagrams) or income (by mentioning the unavailable wage per anagram). Consistent with the results of Study 2, in which we manipulated self-control guilt, in Studies 3–5, we found that the predicted effects are more pronounced among individuals who experience stronger chronic guilt compared with those who do not experience as much chronic guilt. In the final section, we discuss the ability of the two justification routes to explain the findings of prior research on self-control.

Determinants of Self-Control

Choosing between vice and virtue is likely to evoke guilt and intrapersonal conflict, as it requires balancing immediate temptations with long-term goals. Given the difficulty of resolving such self-control dilemmas, people often resort to principles and reason-based choice (Prelec & Herrnstein, 1991; Shafir, Simonson, & Tversky, 1993). As discussed next, such principles and reasons favor virtues and necessities, which can often result in overcontrol and chronic postponement of hedonic experiences. Nevertheless, recent research suggests several mechanisms that individuals may use to justify self-gratification. We review this research and subsequently examine two main antecedents of the ease of justifying self-gratification: feelings of entitlement and perceptions of the invested resource. Of course, scholars have identified other important factors that affect self-control, including emotional and visceral influences (Baumann, Cialdini, & Kendrick, 1981; Loewenstein, 1996), reward saliency (Metcalfe & Mischel, 1999; Mischel, 1981), goal-directed behavior (Dhar & Simonson, 1999), temporal and psychological distance (Ainslie, 1975; Fujita et al., 2006), and ego depletion (Muraven & Baumeister, 2000). In this research, however, we focus on hyperopia and justification as determinants of self-control and propose two main routes to justifying self-gratification. A synthesis of these routes leads to new, interesting hypotheses and also integrates prior findings on self-control.

Hyperopia: A Reverse Self-Control Problem

Although the extant literature on self-control focuses on myopia (shortsightedness), recent research suggests that people often suffer from a reverse self-control problem involving excessive farsightedness (hyperopia) and future-biased preferences (Kivetz & Keinan, 2006; Kivetz & Simonson, 2002b). Hyperopia leads people to overly focus on choosing virtues and necessities, deprive themselves of indulgence, and chronically delay hedonic experiences. Kivetz and Simonson (2002b) showed that people who perceive themselves as suffering from hyperopia use precommitments to indulgence and luxury. For example, people choose frivolous indulgence rewards over cash of equal or greater value and explain such choices as intended to guarantee that the award is not spent on necessities or savings. Building on these findings, Kivetz and Keinan (2006) showed that supposedly farsighted choices of virtue over vice evoke increasing regret over time. They found that the effect of time on self-control regrets was mediated by the decay of guilt and the intensification of feelings of missing out on the pleasures of life.

Hyperopia may arise from a tendency to rely on reasons and principles when confronting self-control dilemmas. Choices that are based on reasons (Shafir et al., 1993) naturally overweigh virtue and necessity at the expense of vice and luxury because the former can be more readily explained and defended. Relatedly, Prelec and Herrnstein (1991) argued that people often hold moral or prudential rules against hedonic experiences, especially when such experiences crowd out more virtuous activities (e.g., work). Choosing vice can also evoke guilt because it is often construed as wasteful, irresponsible (i.e., detrimental to long-term goals), and even immoral. Such guilt may drive people to overcontrol precisely those experiences that they enjoy and desire the most. Giner-Sorolla (2001) found that emotions of guilt are highly accessible among high–self-control people who chronically resist temptations.

In summary, prior research highlights the difficulty of selecting vices over virtues and the need to justify such choices. As discussed next, decision makers can use two broad mechanisms to justify self-gratification.

Routes to Justifying Self-Gratification

Recent research suggests that expending effort may cause individuals to feel entitled to indulge. Specifically, in the context of loyalty programs, Kivetz and Simonson (2002a) demonstrated that consumers are more likely to select luxury over necessity rewards when these rewards are contingent on greater program requirements (e.g., purchasing gasoline 20 vs. 10 times). To the extent that complying with loyalty program requirements is perceived as difficult, this finding suggests that effort can increase choices of relative vices.

The notion that effort can justify self-gratification is consistent with the literatures reviewed earlier. More specifically, if choice is based on reasons and principles (e.g., Prelec & Herrnstein, 1991; Shafir et al., 1993), then investing a lot of effort may provide a compelling script for selecting vices (i.e., one has earned the right to indulge). Such an effect of effort is also consistent with the Puritanical idea that one is entitled to the "good life" only after hard work (Weber, 1958).

It is interesting that an alternative route to justifying vices involves windfall gains, such as lottery prizes (Arkes, Joyner, Pezzo, & Nash, 1994; Thaler, 1985). That is, it is less psychologically painful to acquire frivolous luxuries when using resources that are perceived as windfall as opposed to regular income or out-of-pocket money. Accordingly, O'Curry and Strahilevitz (2001) found that compared with a standard purchase, choosing in a windfall (lottery) situation increased the preference for vices over virtues. The notion that it is particularly painful to spend income on vices is consistent with the assumption in microeconomics that, compared with necessities, luxuries have a greater income (and price) elasticity of demand (e.g., see Lipsey, 1989).

That is, a decrease in income (or an increase in price) is assumed to generate a greater decline in the demand for luxuries than the demand for necessities.

Justifying Self-Gratification: A Synthesis

The review of prior research suggests two broad mechanisms for overcoming guilt and justifying self-gratification. Specifically, both high effort and low monetary (or income) costs may provide special justifications to indulge in luxury and vice.

These two routes may initially appear contradictory, as the first suggests that investing greater resources justifies self-gratification and the second implies the exact opposite. However, the two routes involve different types of resources: specifically, effort versus income. Expending high effort provides a compelling justification to indulge, namely, entitlement or deservingness. In contrast, spending regular income or money on vices is particularly difficult to justify (to oneself and to others) because such resources are essential for necessities and virtuous uses.

In summary, we argue that the dilemma between virtue and vice is complex, susceptible to opposing moral and emotional influences (e.g., guilt vs. temptation), and conducive to intrapersonal conflict. Consequently, people may resort to principles and justification cues, which help resolve an otherwise intricate and difficult self-control dilemma. We propose two main determinants of justification: entitlement and perceptions that the required resource investment does not deplete income. As discussed earlier, in the absence of a salient justification, people are more likely to be hyperopic; that is, they are likely to chronically delay gratification and overweigh virtues relative to vices.

It is important to emphasize that we study situations in which choices of vice are generated by—rather than generating—justifications. In our experiments, justification cues are externally manipulated and antecede decisions. We do not explore the justifications that people may use to rationalize self-gratification ex post facto (e.g., Festinger, 1957).

The Role of Effort and Intertemporal Conflict in Self-Control Choices

In this section, we describe our tests of the prediction that exerting what is perceived as high rather than low effort will increase choices of vice over virtue. We report three studies, in which we used actual effort tasks and examined real choices adopted from prior research on self-control.[1] In these studies, we investigated how self-control choices are influenced by effort investment that is either absolute (Study 1A) or relative to the supposed effort of others (Studies 1B and 1C). As explained subsequently, examining the impact of both absolute and relative effort is critical for contrasting our proposed justification mechanism with an alternative explanation based on ego depletion. In Study 1C, we also test the prediction that effort will have a greater impact on individuals for whom selecting vice over virtue represents a greater sacrifice of long-term goals. In subsequent sections, we examine the role of self-control guilt as a moderator of justification, extend the notion of entitlement from effort to excellence, and examine the justification route involving perceptions of income.

Study 1A: Hollywood Hits Versus Painful Self-Evaluation

Method

Participants and design. Participants were 85 students at Columbia University (details regarding the demographics of the participants in this and the other studies reported in this article are summarized in Table 1). Participants were paid $7 each for their participation, which took place in a behavioral research lab. Participants were randomly assigned to one of two (between-subjects) conditions, involving either a low or a high effort level. The dependent variable was participants' choice (after the effort manipulation) between participating in a fun study with no delayed benefits and participating in a painful self-assessment study with long-term benefits (a relative vice and virtue, respectively). This self-control dilemma was adapted from prior research on self-control (Fujita et al., 2006; Trope & Neter, 1994). The fun study, which was described as "rather enjoyable," required watching five short movie clips from Hollywood hits and answering several short questions about each movie. The painful self-assessment study, which was described as "rather tedious," required answering 40 multiple-choice items. Participants were told that the experimenter would give them feedback on their test results, which would predict social adjustment and success in a variety of interpersonal relationships. They were told that this feedback would be very helpful for them in the long term as it would contain realistic self-assessment that would help guide future self-improvement. However, they were warned that the feedback would highlight some of their interpersonal failures and social disadvantages and, therefore, would be unpleasant and would have immediate emotional costs. Participants received a few testimonials (ostensibly) from past participants supporting the description of each study.

Effort manipulation. The effort manipulation required participants to solve 10 word anagrams (adopted from Shah, Higgins, & Friedman, 1998). They were given an example of one anagram (e.g., *IRENFD*), its correct solution (either *FRIEND* or *FINDER*), and an invalid solution (*FIEND*). In

[1] The self-control dilemmas used in these and the subsequent studies were adopted from research on self-control by Ferraro et al. (2005), Fujita et al. (2006), Read et al. (1999), Shiv and Fedorikhin (1999), Trope and Liberman (2000), and Trope and Neter (1994). Such self-control dilemmas entail a choice between alternatives with immediate benefits but possible delayed costs (relative vices or leisure goods) and alternatives with delayed benefits but possible immediate costs (relative virtues or investment goods; e.g., Wertenbroch, 1998). We pretested the self-control dilemmas used in our studies to verify that they were perceived by participants according to our conceptualization. In one pretest, 50 respondents were presented with a series of choices between two alternatives and were asked to indicate which alternative they thought 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 or 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 self-control dilemmas, the alternatives designated as vice or as virtue were perceived as such. Specifically, a significant majority of respondents indicated that the vices would be chosen by a self-indulgent person who is concerned with immediate pleasure and that the virtues would be chosen by a prudent person who is concerned with the future. In a second pretest, 34 respondents rated each alternative on a 5-point scale ranging from 1 = *strictly vice* to 5 = *strictly virtue*. Respondents received definitions adapted from Read et al. (1999) and Wertenbroch (1998) for vice ("something that is enjoyable initially, but does not have a positive effect in the long run") and virtue ("something that may not be as enjoyable initially, but has a positive effect in the long run"). The results indicated that the alternatives designated as vice or as virtue were overwhelmingly rated as such by respondents. More details on these pretests, as well as on additional related pretests with similar results, can be obtained from the authors.

Table 1
Participants' Demographics

Study	Population (degree)	Age (in years)		Gender (% female)
		M	*SD*	
1A	Columbia students (undergraduate: 72%)	24	7.7	67
1B	Columbia students (undergraduate: 74%)	22	3.5	56
1C	Columbia students (undergraduate: 92%)	21	2.7	46
2	Columbia students (undergraduate: 67%)	23	4.8	61
3	Columbia students (undergraduate: 73%)	22	4.3	43
4	Columbia students (undergraduate: 70%)	22	4.1	48
5	Train station travelers (undergraduate degree or above: 87%)	31	11.3	41
6	Columbia students (undergraduate: 74%)	22	3.4	39

the low-effort condition, participants were asked to find one correct word per anagram, whereas in the high-effort condition, they were asked to find two correct words per anagram. Participants in both conditions then received a list of 10 anagrams, each followed by either one or two spaces (depending on the manipulated effort level) for writing the anagram's solution(s).

Procedure. In both conditions, participants first completed the effort manipulation task, which was presented as the "Psychology Department Study on Word Perception." After the effort manipulation, participants received a (supposedly) unrelated survey titled "Study of Your Choice." This survey, which was printed using different paper, font, and layout than was used for the effort manipulation task, contained the self-control dilemma described earlier. Participants were informed that because of the limited time allotted to the lab session, they must choose between two studies (i.e., the Hollywood hits study and the painful self-evaluation study). After selecting the study they wished to complete next, participants were asked to explain their choice in writing (nothing insightful was found in these choice explanations, which were also collected in the subsequent studies). At the conclusion of this and all subsequent experiments, before participants were debriefed and thanked, they were probed for suspicion and asked to indicate what they thought was the purpose of the research. None suspected that the effort tasks were intended to influence their subsequent choices and none guessed the actual purpose of the research or articulated the hypotheses being tested.

Results

As hypothesized, the share of participants who selected the Hollywood hits study over the painful self-evaluation study was significantly greater among those who previously completed the high-effort anagram task compared with those who completed the low-effort anagram task (68%, or 27 out of 40 participants, vs. 40%, or 18 out of 45 participants; $z = 2.6$, $p < .01$). This result provides initial support for the entitlement route to justification, indicating that higher effort increased the likelihood of selecting vice over virtue.

An alternative explanation for the observed effect is that exerting high effort (in the anagram task) led to ego depletion and consequently reduced self-control in the subsequent decision (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Accordingly, we designed Studies 1B and 1C to test the entitlement route to justification while ruling out the ego depletion rival account. Specifically, in these studies, participants' actual effort investment was held constant and their perceived effort level was manipulated by varying the (supposed) effort expended by other participants.

Study 1B: Lowbrow Versus Highbrow Movies

Method

Participants and design. Participants were 63 students at Columbia University. They were randomly assigned to one of two conditions involving either a low or a high (relative) effort level. The dependent variable was participants' choice of a free 1-week movie rental (as a reward for completing the preceding effort task) from a list of three lowbrow and three highbrow films. This self-control dilemma was adopted from Read, Loewenstein, and Kalyanaraman (1999), who argued that highbrow movies could be viewed as virtues relative to lowbrow movies because "they offer less immediate pleasure . . . but provide long-term benefits in the form of educational or cultural enrichment" (p. 262). In contrast, they argued that lowbrow movies "fall more into the vice category because they are fun but forgettable" (p. 262). The descriptions of the movies (listed in Figure 1) contained titles, brief synopses, and posters. Highbrow and lowbrow movies were mixed up in the list, and the two types of movies were not labeled. We selected and pretested the highbrow and lowbrow movies on the basis of the criteria stipulated by Read et al. (see details in the caption of Figure 1).

Relative effort manipulation. The effort task required participants to construct 16 sentences. Each sentence was constructed by unscrambling a set of five words that contained exactly four words that made up a grammatically correct sentence. Participants were given an example of one set of words ("feeds he the cat they") and its correct solution ("He feeds the cat"). Participants were informed that the study investigated how different levels of effort influence people's performance on language-related tasks. In the low-relative-effort condition, participants were told that they would be randomly assigned to a particular level of effort involving the construction of anywhere between 14 to 28 sentences (lowest to highest possible effort, respectively). In contrast, in the high-relative-effort condition, participants were told that they would be randomly assigned to construct anywhere between 4 to 18 sentences. In actuality, participants in both conditions were required to construct 16 sentences, which fell in the lower [upper] end of the range in the low-[high-]relative-effort condition. Thus, participants in the two conditions invested the same absolute effort but faced a different relative effort compared with "other participants."

Procedure. Participants first completed the relative effort manipulation task. They then received a form that indicated that, as a thank you for their participation, they were offered a free Blockbuster certificate good for a 1-week rental of one of the movies listed in Figure 1. Participants were asked to indicate on the form which movie they chose and then call over the experimenter. The experimenter then noted their choice and gave them a certificate with the title of the chosen movie printed on it (certificates were redeemable at any Blockbuster store).

Lowbrow movies

Ferris Bueller's Day Off (3.5)
The Matrix (4.1)
James Bond: Episode of Your Selection (3.2)

Highbrow movies

Schindler's List (6.2)
The Shawshank Redemption (5.3)
A Beautiful Mind (5.5)

Sample descriptions

James Bond: *Episode of your choice*
The world's greatest secret agent, 007, is sent once more into the breach in the name of Queen, Country, and a dry martini.

Schindler's List: Oskar Schindler employs Jews to start a factory in Poland during the Second World War. He witnesses the horrors endured by the Jews, and starts to save them.

Figure 1. Movie choices in Study 1B, with sample descriptions and mean "highbrowness" ratings. A pretest was conducted to verify that the movies designated *highbrow* and *lowbrow* were indeed perceived as such by participants. Twenty respondents from the student population sampled for the main study rated the six movies on a 7-point highbrowness scale ranging from 1 = *lowbrow movie* to 7 = *highbrow movie*. They were provided with definitions adopted from Read et al. (1999) of lowbrow movies ("These movies are fun or pleasurable to watch, but they tend to be quickly forgotten") and highbrow movies ("These movies tend to be less pleasurable to watch than lowbrow movies, but you are more likely to remember them and think about them afterwards"). The mean ratings (shown in parentheses) indicate that the movies identified as highbrow received higher highbrowness ratings than did those identified as lowbrow. The difference between the mean ratings of highbrow and lowbrow movies was statistically significant ($M = 5.6$, $SD = 0.6$, vs. $M = 3.6$, $SD = 1.3$), paired samples $t(19) = 7.4$, $p < .001$, Cohen's $d = 1.98$.

Results

As hypothesized, higher relative effort increased the likelihood of choosing a lowbrow (vice) movie rather than a highbrow (virtue) movie (to 44%, or 14 out of 32 participants, from 23%, or 7 out of 31 participants; $z = 1.8$, $p < .05$). Because only relative but not absolute effort was manipulated, this result is consistent with the entitlement route to justifying self-gratification but not with the rival ego depletion account.

Next, we contrast the justification and ego depletion explanations using a third self-control dilemma adopted from prior research, specifically, choosing between a decadent chocolate cake and a healthy fruit salad (Ferraro, Shiv, & Bettman, 2005; Fujita et al., 2006; Shiv & Fedorikhin, 1999; Trope & Liberman, 2000). We also examine the decisions of people for whom choosing the vice over the virtue entails more versus less sacrifice of long-term goals. The entitlement route to justification predicts that higher effort will have a greater impact on the former type of people, namely, those with a greater need to justify immediate gratification.

Study 1C: Cake Versus Fruit Salad

Method

Participants and design. Participants were 139 students at Columbia University. They were randomly assigned to one of two conditions involving either a low or a high (relative) effort level. The dependent variable was participants' choice of a $4 reward certificate for completing the preceding effort task. Participants could choose between a "rich, delicious chocolate cake" (a vice) and a "low-calorie, seasonal fruit salad" (a virtue). The rewards were presented using color photographs and were redeemable at a gourmet store close to campus.

Procedure. Participants first completed the relative effort manipulation, consisting of the sentence-construction task used in Study 1B. They then received a form thanking them for their participation and asking them to choose between the cake and fruit salad rewards. Next, participants answered questions that assessed whether they perceived eating the cake rather than the fruit salad as more detrimental to their long-term interests. The questions asked participants to rate along 7-point scales whether they agreed that eating the cake versus the fruit salad would lead to more negative consequences in the long run, provide lower fit with long-term goals, and offer fewer future benefits. Given the internal consistency of these difference ratings (Cronbach's $\alpha = .72$), the mean of these ratings was used as a predictor in the subsequent analysis. This *intertemporal conflict* scale could range from 6 to −6, with higher values indicating that the participant perceived the cake relative to the fruit salad as more detrimental to long-term goals.

Results

Consistent with the entitlement route to justification, higher relative effort increased the likelihood of choosing the vice reward (chocolate cake) over the virtue reward (fruit salad) from 37% (25 out of 67 participants) in the low-relative-effort condition to 50%

(36 out of 72 respondents) in the high-relative-effort condition, $z = 1.5$, $p < .07$. We posit that the statistical weakness of the observed effect is due to heterogeneity in participants' perceptions of the offered rewards. We argued that people rely on effort as a cue that justifies trading off long-term interests for the sake of immediate pleasure. Therefore, participants who perceive eating the cake rather than the fruit salad as detrimental to their long-term goals should be sensitive to the manipulated effort level. However, participants who do not experience the choice as presenting such an intertemporal conflict do not need a justification and, therefore, should not be influenced by the relative effort level.

We used a logistic regression to test the prediction that the effect of effort is stronger among participants who perceive the cake as entailing a greater sacrifice of long-term goals. The interaction between effort and intertemporal conflict was statistically significant and in the hypothesized direction (Wald-$\chi^2 = 4.9$, $p < .05$). To illustrate this effect, we divided participants into high- and low-intertemporal-conflict groups on the basis of a median split of their scores on the intertemporal conflict scale (means and standard deviations of the scores in the high vs. low intertemporal conflict groups were $M = 3.8$, $SD = 1.2$, vs. $M = 0.6$, $SD = 1.1$, respectively). Consistent with our conceptualization, greater relative effort increased the share of the cake reward by 24% in the high-intertemporal-conflict group (21% vs. 44% for low vs. high effort; $z = 2.2$, $p < .05$) compared with an increase of only 1% in the low-intertemporal-conflict group (55% vs. 56% for low vs. high effort; $z = 0.1$, $p > .1$). This result supports the notion that people with a greater need to justify immediate gratification rely more heavily on entitlement cues.

Studies 1A Through 1C: Discussion

The findings of Studies 1A–1C support the entitlement route to justification by demonstrating that higher effort increases the tendency to select vice over virtue. This effect was replicated using three dilemmas adopted from prior research on self-control. The effect of higher effort was observed regardless of whether the self-control choice was framed as a reward for a prior task (Studies 1B and 1C) or as ostensibly unrelated to the effort (Study 1A). Further, the results rule out the rival ego depletion account, because self-control choices were affected even when participants' actual effort investment was held constant and higher effort was defined relative to the (supposed) effort of others.

Study 2: The Interaction Between Guilt and Effort in Self-Control Choices

The present study was designed to test the conceptual framework by examining the role of guilt in self-control decisions. If, as we argued, expending high effort provides an entitlement to self-gratification, then this effect should be particularly pronounced among people who feel guilty about sacrificing long-term goals (virtues) for the sake of short-term pleasures (vices). Such guilt creates a need to justify immediate gratification and, consequently, increases sensitivity to justification cues. In contrast, people with low self-control guilt can simply choose between vices and virtues on the basis of their inherent needs and wants, that is, independently of justification cues like effort.

We investigated our conceptualization using both manipulations of self-control guilt (in Study 2) and measurements of participants' chronic tendency to feel guilty about vice and luxury (Studies 3–5). In the current study, we varied participants' self-control guilt by using a manipulation adopted from Schwarz et al. (1991). Schwarz and his colleagues found that the subjective ease of recalling a particular behavior affected self-judgments of that behavior; experiences that were perceived as easy to recall were judged to be more self-descriptive, and experiences that were perceived as difficult to recall were judged to be less self-descriptive.

As detailed next, we asked participants to recall either two or eight examples of self-control dilemmas (from the past week) in which they either yielded to temptation and chose a vice or overcame temptation and selected a virtue. Pretests indicated that recalling two examples was easy, whereas recalling eight examples was difficult. Thus, on the basis of Schwarz et al.'s (1991) findings, participants are expected to feel stronger self-control guilt after recalling two rather than eight examples of vice-ridden behavior. Conversely, participants should feel stronger guilt after recalling eight rather than two examples of virtuous behavior. We expect these manipulations of guilt to interact with the manipulated level of effort in determining subsequent self-control choices. In particular, the effect of effort on self-gratification is predicted to be magnified in the high-guilt group as compared with the low-guilt group.

Method

Participants and Design

The participants were 105 students at Columbia University. Participants were randomly assigned to one of eight conditions in a 2 (examples of vice-ridden vs. virtuous behaviors) × 2 (two vs. eight examples) × 2 (low vs. high effort level) between-subjects design. The dependent variable was participants' real choice of a lottery reward for completing an effort task. Specifically, participants had to choose a 1-yr magazine subscription to either *Time* (a relative virtue) or *Time Out New York* (a relative vice). The two magazines were presented using color photographs of their covers and a brief description of their content (e.g., "*Time* provides insightful analysis of today's important events . . . from politics, to scientific breakthroughs, to human achievement" and "*Time Out New York* is your ultimate entertainment guide").

Procedure

In all conditions, participants first completed the guilt manipulation, which was described as a business school study concerned with the development of self-control scenarios intended for future research. Participants were given examples of choices between virtuous and vice-ridden behaviors (studying vs. partying, saving vs. spending, and dieting vs. eating nonhealthy food) so that they were familiarized with the notion of self-control dilemmas. Participants were asked to describe either two or eight examples of situations from the past week in which they "yielded to a vice instead of choosing a virtue" or of situations in which they "overcame the temptation of vice and chose a virtue." Pretests indicated that generating two examples was subjectively easy, whereas generating eight examples was difficult. Participants wrote their examples on answer sheets that provided more space in the eight- than in the two-example conditions.

After the guilt manipulation, participants received a (supposedly) unrelated survey titled "Psychology Department Study on Word Perception," which was printed using different paper, font, and layout than the previous

business school study. This survey contained the effort manipulation described in Study 1A, in which participants were required to find either one or two solutions for each of 10 anagrams (low vs. high effort level, respectively). After completing the effort manipulation, participants received a form thanking them for their participation in the anagram study and asking them to choose between two lottery rewards (the magazine subscriptions described earlier). Participants were instructed to tear off the bottom half of the lottery form and to keep it as a receipt. This lottery receipt had a number on it and a Web site address that participants subsequently checked to see whether they had won (the odds of winning were 1 out of 50).

Next, participants received a new page with manipulation checks for the differing effort levels. 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 effortful (using a 7-point scale ranging from 1 = *no effort at all* to 7 = *very high effort*).

Results and Discussion

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 ($M = 5.1$, $SD = 1.5$, vs. $M = 3.8$, $SD = 1.8$; $t(103) = 4.0$, $p < .001$, Cohen's $d = 0.8$; and $M = 5.3$, $SD = 1.4$, vs. $M = 4.2$, $SD = 1.8$; $t(103) = 3.6$, $p < .001$, Cohen's $d = 0.7$, for the difficulty and effort scales, respectively). Further, consistent with the notion that participants in the high-effort condition compared with participants in the low-effort condition worked harder, participants in the former condition listed (on average) a significantly greater total number of words ($M = 16.0$, $SD = 4.6$, vs. $M = 9.1$, $SD = 1.9$), $t(103) = 10.1$, $p < .001$, Cohen's $d = 2.0$.

We also conducted manipulation checks (adopted from Schwarz et al., 1991) to verify that the guilt manipulations produced the intended effects on participants' experienced ease of recall and emotions of guilt. Eighty-six respondents from the same student population were randomly assigned to one of four conditions in a 2 (examples of vice-ridden vs. virtuous behaviors) × 2 (two vs. eight examples) between-subjects design. After providing the requested number of examples, respondents rated the extent to which they felt guilty on a scale ranging from 1 = *not at all guilty* to 7 = *very guilty*. Additionally, respondents rated how difficult it was to recall the requested number of examples on a scale ranging from 1 = *not at all difficult* to 10 = *very difficult*. Analysis of respondents' reported ease of recall showed that they found it more difficult to generate eight examples ($M = 6.4$, $SD = 2.4$) rather than two examples ($M = 3.5$, $SD = 2.4$), $t(84) = 5.7$, $p < .001$, Cohen's $d = 1.2$. The effect of the number of requested examples on experienced ease of recall was in the predicted direction regardless of whether participants recalled examples of vice-ridden or virtuous behaviors (both ps $< .005$). Accordingly, consistent with Schwarz et al. (1991) and our intended manipulation, respondents in the *high self-control guilt* conditions (i.e., recalling two examples of vice-ridden behavior or eight examples of virtuous behavior) reported stronger feelings of guilt than did respondents in the *low self-control guilt* conditions (i.e., recalling eight examples of vice-ridden behavior or two examples of virtuous behavior). The difference between the mean guilt ratings in the high versus low self-control guilt conditions was statistically significant ($M = 3.2$, $SD = 1.7$, vs. $M = 2.4$, $SD = 1.6$), $t(84) = 2.2$, $p < .05$, Cohen's $d = 0.5$. Further, the number of requested examples had the intended impact on respondents' feelings of guilt regardless of whether they recalled examples of vice-ridden or virtuous behaviors (both ps $< .1$).

Prize Choices

Consistent with the entitlement route to justification, higher effort increased the likelihood of choosing the *Time Out New York* (vice) magazine over the *Time* (virtue) magazine (to 58%, or 29 out of 50 participants, from 40%, or 22 out of 55 participants; $z = 1.9$, $p < .05$). We used a logistic regression to test the hypothesis that the positive effect of effort on the likelihood of selecting vice is stronger under high self-control guilt (i.e., recalling two examples of vice-ridden behavior or eight examples of virtuous behavior) than under low self-control guilt (i.e., recalling eight examples of vice-ridden behavior or two examples of virtuous behavior). As predicted, the interaction between self-control guilt and effort was statistically significant and in the hypothesized direction (Wald-$\chi^2 = 4.3$, $p < .05$). Specifically, greater effort increased the share of the vice magazine by 38% in the high self-control guilt groups (67% vs. 29% for high vs. low effort; $z = 3.0$, $p < .005$) compared with an unreliable decrease of 2% in the low self-control guilt groups (50% vs. 52% for high vs. low effort; $z = 0.1$, $p > .1$). The simple interaction between guilt and effort was in the predicted direction regardless of whether participants recalled examples of vice-ridden behavior or virtuous behavior. Specifically, among participants recalling vice-ridden behaviors, higher effort increased self-gratifying prize choices by 51% ($z = 2.8$, $p < .005$) among those recalling two examples (i.e., high self-control guilt) compared with an unreliable increase of only 14% ($z = 0.7$, $p > .1$) among those recalling eight examples (i.e., low self-control guilt). Correspondingly, among participants recalling virtuous behaviors, higher effort increased self-gratifying choices by 44% ($z = 2.3$, $p < .01$) among those recalling eight examples (i.e., high self-control guilt) compared with an unreliable decrease of 4% ($z = 0.2$, $p > .1$) among those recalling two examples (i.e., low self-control guilt).

In summary, Study 2 provides additional evidence for the positive effect of higher effort on self-gratification. More important, the findings support the conceptualization that an entitlement justification motivates the effect of effort. Specifically, the effect of effort was pronounced among people who were led to feel guilty about trading off long-term goals (virtues) for short-term pleasures (vices). Such "guilty" people need a special justification to indulge in immediate gratification. Conversely, the effect of effort was attenuated among people with low (situational) guilt. For low-guilt people, self-control decisions create less intrapersonal conflict and can therefore be made based on inherent preferences rather than justification cues.

Study 3: The Impact of Perceiving Effort as Income

So far, we have focused on the entitlement route to justification and the effect of effort. In this and the subsequent studies, we also examined the second justification route by investigating the impact of perceiving resources as effort versus as income. We suggest that effort and income have diametrically opposed effects on justification. Although expending effort makes it easier to justify self-gratification, spending income makes it more difficult.

Although the fruits of effort can be (and often are) converted into income, monetary resources are more likely to be spontane-

ously perceived as an integral part of one's regular income. Such income (and by extension monetary resources) are vital for necessities and virtuous uses as well as for savings for future needs. Thus, contrary to investing effort, expending money on short-term pleasure cannot be easily justified. In fact, incurring monetary costs for the sake of vices is likely to be perceived as wasteful, irresponsible, and even immoral: The more money spent on vice, the less income left for attaining necessities and securing the future. The notion that it is particularly difficult to justify spending income on vices is consistent with findings on hyperopia, whereby people precommit to indulgence to overcome their resistance to spending money on such items (Kivetz & Simonson, 2002b).

We predicted that framing effort as income would reverse the positive effect of higher effort on choices of vices. Specifically, implying that effort is interchangeable with income (e.g., by providing information regarding the typical wage for such effort) undermines the ability to justify—via higher effort—self-gratifying choices. In fact, when the interchangeability of effort and income is transparent, greater effort requirements are expected to make it harder to justify choosing vice over virtue, because such choices will be perceived as a waste of hard-earned income.

In addition to testing the aforementioned interaction hypothesis, the present study generalizes the findings of Study 2 by measuring rather than manipulating self-control guilt. We retested the hypothesis that the positive effect of higher effort on self-gratification will be more pronounced among individuals who experience stronger guilt. Moreover, we examined the prediction that individuals with high (compared with low) levels of chronic guilt will drive the hypothesized interaction between the magnitude of the resource investment and the perception of the resource as effort versus income. As discussed previously, high-guilt individuals are conjectured to rely more heavily on the two justification routes. Therefore, the tendency of high-guilt people to choose vice over virtue should exhibit both a strong positive response to higher effort and a strong negative response to higher perceived income investment. In contrast, low-guilt individuals are conjectured to make self-control decisions independent of justification cues, and, therefore, the choices of such individuals should exhibit much weaker effects. As detailed next, these hypotheses were investigated in the context of a fifth self-control dilemma involving real choices between a relative virtue and a relative vice.

Method

Participants and Design

The participants were 79 students at Columbia University. Participants were randomly assigned to one of four conditions in a 2 (low vs. high effort level) × 2 (effort vs. income frame) between-subjects design. The dependent variable was participants' choice of reward (for completing a preceding effort task): "a box of Godiva 4 Piece Assorted Deluxe Chocolates" (a relative vice) or "a set of 4 AA or AAA Duracell Alkaline Batteries" (a relative virtue).

Procedure

Participants first received a survey titled "Psychology Department Study on Word Perception." This survey contained the effort manipulation used earlier, in which participants were required to find either one or two solutions for each of 10 anagrams (low vs. high effort, respectively). After completing the 10 anagrams, participants received a page that informed them that the preceding study was conducted in collaboration with researchers from another university. In the conditions in which the interchangeability of effort and income was implied (i.e., income frame), 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 told that instead of the $5 cash award, they could receive their choice of two rewards. In the conditions in which the interchangeability of effort and income was not implied (i.e., effort frame), no cash compensation was mentioned. Rather, in these conditions, participants were told that the researchers from the other university offered them a choice between two rewards. The two rewards consisted of the aforementioned chocolates and batteries and were described as having a retail value of $5.

After participants chose their reward, they rated on 7-point scales the degree to which the anagram task was difficult and effortful (the manipulation of effort produced the expected effort perceptions, with participants who were required to find two words per anagram rating the task as significantly more difficult and involving significantly more effort than did participants who were required to find only one word per anagram). Respondents then received four pages with unrelated filler problems. Finally, to measure individual differences in chronic self-control guilt, we asked respondents to rate whether they tended to feel guilty when considering "luxurious products and services that are pleasurable but not necessary." Ratings were made on a 7-point scale ranging from 1 = *never* to 7 = *always.* In a separate series of studies, this trait measure of self-control guilt was found to have adequate test–retest reliability and convergent and discriminant validity.[2]

Results

Consistent with the two justification routes, participants' reward choices revealed a significant interaction between effort level and whether the interchangeability of effort and income was implied (Wald-χ^2 = 10.4, $p < .001$). When the typical wage for the anagram task was not mentioned (i.e., in the effort frame), participants were significantly more likely to choose the chocolates over the batteries in the high- versus the low-effort condition (50%, or 10 out of 20 participants, vs. 21%, or 4 out of 19 participants; z =

[2] In the first study, 70 participants completed the self-control guilt measure in the behavioral research lab in the context of an unrelated study and then completed the measure again in a brief online study 2 weeks later. The test–retest reliability of the measure was .68 based on the Pearson correlation between the two ratings ($p < .01$). In a second study (n = 258), divergent validity was established relative to social desirability. The guilt measure was found to be uncorrelated with a 20-item subset of the Balanced Inventory of Desirable Responding (Paulhus, 1991) for both the Self-Deception items (r = .01) and the Impression Management items (r = .09). In a third study (n = 299), both convergent and divergent validity were established relative to the distinct trait dimensions of self-conscious affect as measured by the Test of Self-Conscious Effect Scale (TOSCA-3; Tangney & Dearing, 2002). Convergent validity was demonstrated by positive correlations of the self-control guilt measure with the negative self-conscious affect subscales (Guilt r = .30 and Shame r = .42, both ps $< .01$). Divergent validity was demonstrated by the weak correlations with the positive self-conscious affect subscales (Externalization $r = -.04$, Pride $r = -.10$, and Detachment $r = -.14$). In a final study (n = 270 adults), convergent validity was demonstrated relative to trait measures of compulsivity. The self-control guilt measure was positively correlated with O'Guinn and Faber's (1989) Obsessive–Compulsive Scale (r = .40, $p < .01$), which is a subset of items from Scale 7 of the Minnesota Multiphasic Personality Inventory. The item was also positively correlated with the Post-Purchase Guilt subscale of Valence, d'Astous, and Fortier's (1988) Compulsive Buying Scale (r = .39, $p < .01$).

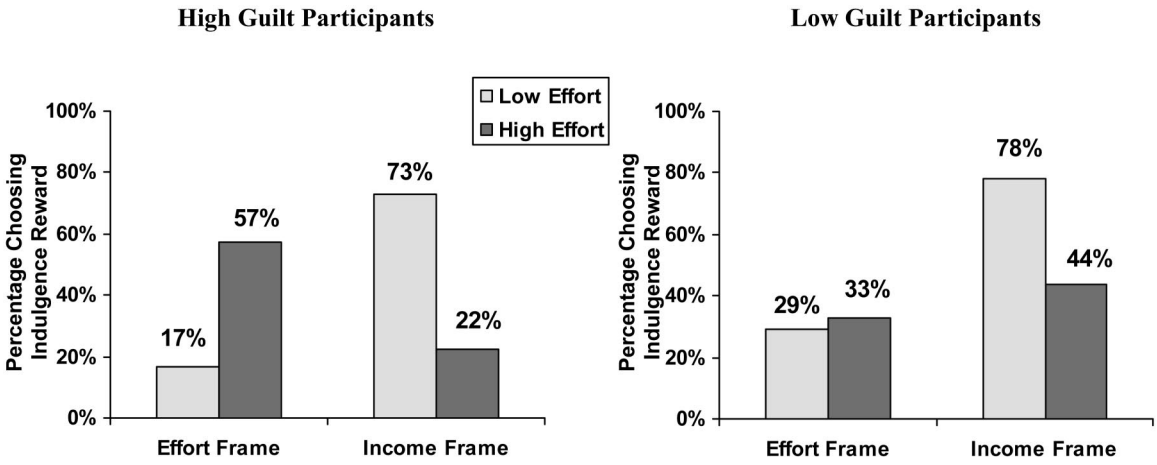

Figure 2. The role of guilt (Study 3).

2.0, $p < .05$). This effect supports the entitlement route to justification and replicates the results of the previous studies. More important, as hypothesized, this effect reversed when the interchangeability of effort and income was implied. In particular, when participants were informed about the unavailable \$5 cash compensation (i.e., in the income frame), they were significantly less likely to choose the chocolate reward over the batteries in the high- versus the low-effort condition (32%, or 6 out of 19 participants, vs. 76%, or 16 out of 21 participants; $z = 3.2$, $p < .001$). This effect is consistent with the notion that people are reluctant to spend hard-earned income on vices but are willing to spend easy income (or windfall gains) on such vices.

To examine the moderating role of self-control guilt, we tested the hypothesis that individuals with higher levels of chronic guilt drive the interaction between the magnitude of the resource investment and the perception of the resource as effort versus income. Consistent with this hypothesis, the three-way interaction between guilt, magnitude of resource investment, and perception of invested resources was statistically significant and in the predicted direction (Wald-$\chi^2 = 6.7$, $p = .01$). To illustrate this effect, we divided participants into two groups, high and low guilt, based on a median split of their guilt scores (means and standard deviations of the guilt scores in the high- vs. low-guilt groups were $M = 5.7$, $SD = 0.8$, vs. $M = 3.0$, $SD = 0.9$, respectively). We then examined—separately for the low- and high-guilt groups—the simple interaction between the magnitude of resource investment (low vs. high) and the perception of invested resource (effort vs. income). As expected, among high-guilt participants, the simple two-way interaction was statistically significant and in the predicted direction (Wald-$\chi^2 = 8.6$, $p < .005$). As shown in Figure 2 (left panel), among high-guilt participants, the simple effects of effort level were in the predicted directions both in the effort frame and in the income frame ($p < .01$ and $p < .005$, respectively). In contrast, as expected, among low-guilt participants, the simple two-way interaction did not approach statistical significance (Wald-$\chi^2 = 1.1$, $p > .1$). Furthermore, as illustrated in Figure 2 (right panel), among low-guilt participants, the simple effects of effort level did not reach statistical significance in either the effort frame or the income frame ($p > .4$ and $p > .06$, respectively).

Study 3 allowed us to retest and generalize the hypothesis that the effect of effort is stronger with greater self-control guilt. We examined the choices of those participants for whom the interchangeability of effort and income was not implied (i.e., only those in the effort frame). Consistent with the results of Study 2 (in which guilt was manipulated), the interaction between effort level and chronic guilt was statistically significant and in the hypothesized direction (Wald-$\chi^2 = 4.4$, $p < .05$). Accordingly, greater effort requirements increased the share of the vice reward by 40% in the high-guilt group (57% vs. 17%; $z = 2.4$, $p < .01$) compared with an unreliable increase of only 4% in the low-guilt group (33% vs. 29%; $z = 0.2$, $p > .1$).

Discussion

The findings of Study 3 indicate that the positive effect of effort on self-gratification reverses when the interchangeability of effort and income is implied. Although expending higher effort provides an entitlement to choose vices, spending (what is perceived as) harder earned income on vices is difficult to justify. These results support the existence of the two routes to justifying self-gratification. The findings also provide considerable evidence for the role of guilt in moderating the impact of justification on self-control choices, thus offering further support for the proposed conceptualization. It is noteworthy that all of the results of Study 3 were replicated in an unpublished experiment that used a similar design but involved hypothetical rather than real choices among a set of four rewards.[3]

A further analysis of Study 3 and of the abovementioned replication alludes to the possibility of another entitlement mechanism, namely, excellence or outstanding performance. In particular, in both studies, participants in the low-effort conditions who solved more anagrams were significantly more likely to select the vice reward, suggesting that those with greater success in the task felt stronger deservingness. Thus, although low-effort participants

[3] Detailed stimuli, results, and statistical tests can be obtained from the authors.

could not rely on effort as a cue that justifies self-gratification, the (excellent) performance of some of them may have provided a different means of entitlement. Next, we examine the effect of a systematic manipulation of perceived performance on real self-control decisions.

Study 4: Excellence as a Justification for Self-Gratification

We have proposed that investing high effort provides an entitlement justification. Indeed, the studies described so far have indicated that expending higher effort increases choices of vice over virtue. In the present study, we explored a complimentary factor that may generate a feeling of entitlement to self-gratification, namely, excellent performance or achievement. We predict that similar to working hard, perceiving oneself as excelling in a given task will justify and increase choices of vice over virtue.

To test the prediction that excellence provides an entitlement to self-reward, we developed a computerized letter recognition task that gave participants performance feedback (which was unobtrusively manipulated). The study originally included three feedback conditions: (a) a bogus excellence condition, in which participants were told that they scored in the top 90th percentile; (b) a bogus mediocrity condition, in which participants were told that they scored in the top 50th percentile; and (c) 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 mediocrity condition was discontinued.

In addition to investigating the impact of excellence, this study reexamined the effects of individual differences in chronic self-control guilt and of equating effort with income. With regard to the latter, we did not have an a priori hypothesis: On the one hand, highlighting the interchangeability 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 manipulated the perceived performance but held constant the level of required effort, there is no reason that any particular performance condition would be perceived as a greater income investment.

Method

Participants and Design

The participants were 139 students at Columbia University. Participants were randomly assigned to one of four conditions in a 2 (excellence vs. no-excellence performance feedback) × 2 (effort vs. income frame) between-subjects design. Participants were informed that the study was about letter recognition and reaction time.

Procedure

A computer program informed participants that they would be asked to complete three similar tests; in each test, 50 letters were to be briefly displayed consecutively. Participants were told that they would need to press specific keys in response to the particular letters being flashed and that the relevant keys and letters would 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. Figure 3 displays the instructions 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, 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 90th percentile." For excellence participants in the effort frame condition, this final screen offered a choice between two rewards, the chocolates (vice) and the batteries (virtue) mentioned earlier. Participants were shown a picture of the two rewards, were told that each had a retail value of $5, and were asked to indicate their choice. They were then directed to call over 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 income frame condition, the final screen offered a $5 cash excellence reward. These participants were also directed to call over the experimenter, who noted their score. It is important to note, however, that on seeing their score, the experimenter handed these participants a printed page titled "Notice Regarding Cash Reward." This notice indicated that because of administrative issues, the $5 cash reward was now in the form of a value-equivalent reward. Participants were then asked to choose either the chocolates or the batteries as their reward for excelling in the study.

With respect to participants in the no-excellence conditions, they, too, saw a screen that displayed their total score (which, in these conditions, was their true score). The screen indicated that, as a token of appreciation, a reward was being offered to all participants. For no-excellence participants in the effort frame condition, this final screen offered a choice between the batteries and chocolate rewards. In contrast, for no-excellence participants in the income frame condition, the final screen offered a $5 cash reward. These participants were directed to call over 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 chocolate rewards.

After making their reward choices, participants in all conditions rated their current affect using three 7-point items (unhappy–happy, pleased–annoyed, and bad–good moods). They then rated on 7-point scales the degree to which the letter recognition task was difficult and effortful. In addition, as a check for the performance feedback manipulation, participants rated how well they performed in the letter recognition task, using a 7-point scale ranging from 1 = *very poorly* to 7 = *very well*. They were also asked to rate how good they had felt about their performance during the task (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 7-point guilt scale.

Results

Manipulation Checks

As expected, the performance scores provided to participants in the excellence conditions were significantly higher than the scores provided to participants in the no-excellence conditions ($M = 166$, $SD = 48$, vs. $M = 125$, $SD = 56$), $t(137) = 4.6$, $p < .001$, Cohen's $d = 0.8$, although there was no significant difference in the true

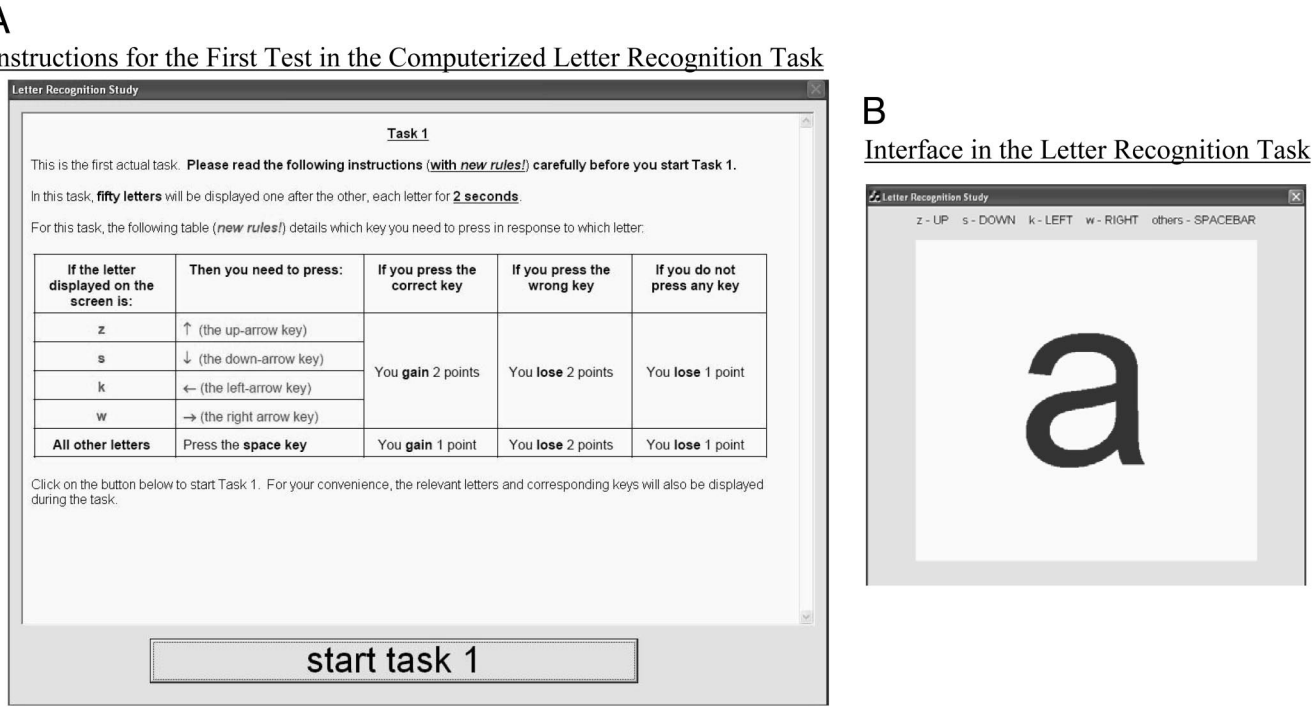

Figure 3. The computerized letter recognition task (Study 4). A: Instructions for the first test in the computerized letter recognition task. B: Interface in the letter recognition task.

performance of the participants in these two groups ($M = 116$, $SD = 48$, vs. $M = 125$, $SD = 56$), $t(137) = 1.0$, $p > .1$, Cohen's $d = 0.2$. Accordingly, the manipulation of performance feedback produced the expected perceptions, with participants in the excellence conditions rating their performance in retrospect as being significantly better than did participants in the no-excellence conditions ($M = 4.6$, $SD = 1.1$, vs. $M = 4.2$, $SD = 1.4$), $t(137) = 2.0$, $p < .05$, Cohen's $d = 0.4$. However, reflecting the lack of difference in true performance, participants in both groups felt equally good about their performance during the task itself ($M = 4.4$, $SD = 1.2$, vs. $M = 4.2$, $SD = 1.3$), $t(137) = 0.8$, $p > .1$, Cohen's $d = 0.1$.

With regard to the effort perceptions, participants in the excellence conditions rated the letter recognition task as being directionally less difficult and involving significantly less effort than did participants in the no-excellence conditions, $M = 3.8$, $SD = 1.4$, versus $M = 4.0$, $SD = 1.4$, $t(137) = 1.0$, $p > .1$, Cohen's $d = 0.2$; and $M = 3.7$, $SD = 1.3$, versus $M = 4.3$, $SD = 1.4$; $t(137) = 2.9$, $p < .005$, Cohen's $d = 0.5$ for task difficulty and effort scales, respectively. This pattern rules out the rival account that choices of vice in the excellence condition were due to higher effort perceptions.

Reward Choices

Supporting the prediction that excellence provides an entitlement to relax self-control, when the unavailable $5 cash reward for the letter recognition task was not mentioned (i.e., in the effort frame), participants in excellence condition were significantly more likely than those in the no-excellence condition to choose the chocolates over the batteries (75%, or 27 out of 36 participants, vs. 46%, or 17 out of 37 participants; $z = 2.7$, $p < .005$). In contrast, when the unavailable cash reward was mentioned (i.e., income frame), providing (bogus) excellence feedback had no effect on the likelihood of choosing the vice reward (45%, or 15 out of 33 participants, vs. 45%, or 15 out of 33 participants). The interaction between performance feedback and perceived resource was in the predicted direction (Wald-$\chi^2 = 3.2$, $p = .07$), indicating that highlighting the interchangeability of effort and income neutralized the entitlement inherent in excellence.

Study 4 allows us to generalize the hypothesis that the impact of entitlement is greater among people with stronger self-control guilt. We examined the choices of participants assigned to the effort frame. The interaction between perceived excellence and chronic guilt was statistically significant and in the predicted direction (Wald-$\chi^2 = 6.5$, $p < .05$). To illustrate this effect, we divided participants into two groups, high and low guilt, based on a median split of their guilt scores (means and standard deviations of guilt scores in the high- vs. low-guilt groups were $M = 5.6$, $SD = 1.0$, vs. $M = 2.9$, $SD = 0.7$, respectively). Consistent with the notion that individuals with greater guilt rely more heavily on justification cues, excellence compared with no excellence increased the share of the vice reward by 36% in the high-guilt group (73% vs. 37%; $z = 2.5$, $p < .01$) compared with an increase of only 23% in the low-guilt group (79% vs. 56%; $z = 1.4$, $p < .1$).

Discussion

Study 4 generalized the entitlement route to justification by showing that, in addition to the investment of 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 a vice reward than were 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 interchangeability of effort and income was implied.

It is important to consider a possible rival account for the effect of excellence, namely, that it induced a happy mood, which in turn led to self-reward. We therefore examined participants' mood states 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 ($\alpha = .83$). Participants in the excellence conditions were indeed happier than participants in the no-excellence conditions ($M = 5.0$, $SD = 0.9$, vs. $M = 4.4$, $SD = 1.4$), $t(26) = 1.3$, $p = .1$, Cohen's $d = 0.5$. However, sadder participants were directionally more likely to select vice.[4] The latter finding is consistent with evidence that people attempt to repair sad mood using self-gratification (e.g., Baumann et al., 1981). Thus, mood cannot explain the positive effect of excellence on self-gratification and, if anything, made our test more conservative.

Implications of the Two Justification Routes for Willingness to Expend Resources

In the previous studies, we examined situations that involved a trade-off between a relative virtue and vice. However, in many situations, the relevant decision is not which of two rewards or actions to choose but how many 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 to obtain either a relative virtue or a vice.

As discussed earlier, the idea that self-gratification requires a justification implies that people will be reluctant to expend resources perceived as income (e.g., money) on vices, 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 (relative virtues) 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 relative virtues than they will be for vices.

The entitlement route to justification and the results obtained in Studies 1 through 3 suggest that people will be willing to pay in effort and to bear increases in such nonmonetary costs more readily for vices than for virtues. That is, given that people feel entitled to self-gratification when they earn vices by exerting more effort, we predict that when costs are denominated in an effort currency, willingness to pay will be higher for vice than it will be for virtue.

In the present study, we examined the differential effects of effort versus money on willingness to pay for vice versus virtue. We also tested the prediction that individuals with high compared with low chronic guilt will drive the hypothesized effects. We manipulated 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 framed resources as income using a subtler manipulation that holds constant the effort activity but suggests that such effort often generates income.

Study 5: Willingness to Pay for Vice and Virtue in Effort Versus in Money

Method

The participants in the study were 229 travelers who were waiting for trains in a major East Coast train station. They were randomly assigned to one of four conditions in a 2 (resource type: effort vs. money) × 2 (item type: relative vice vs. virtue) between-subjects design. The two items, representing a relative vice and virtue, 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 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 min to complete. Correspondingly, in the monetary conditions, participants were asked to indicate the maximum dollar amount they would be willing to pay to acquire the described item. After indicating their maximum number of surveys (or dollar amount), participants were asked to rate whether they tended to feel guilty when considering pleasurable luxuries (using an 11-point version of the guilt scale). Participants were then debriefed and released from their commitment to complete surveys or pay money.

Results

The results supported the two routes to justifying self-gratification. Specifically, participants' willingness to pay revealed a significant interaction in the predicted direction between resource and item type, $F(1, 225) = 3.8$, $p = .05$, $MSE = 0.99$, $\eta^2 = .02$ (normalized scores were used to test this and the subsequent interaction effects). When the resource was money, participants were willing to pay significantly less money to acquire the massage than the unisex haircuts ($M =$ \$46.20, $SD =$ \$28.30, vs. $M =$ \$60.10, $SD =$ \$51.00), $t(117) = 1.8$, $p < .05$, Cohen's $d = 0.3$. In contrast, when the resource was effort, participants were willing to expend directionally more effort to earn the massage than the haircuts, although this effect did not reach statistical significance ($M = 3.6$ surveys, $SD = 4.2$, vs. $M = 2.9$ surveys, $SD = 3.6$), $t(108) = 0.9$, $p < .2$, Cohen's $d = 0.2$.

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 our hypothesis, the relative willingness to pay for the vice versus the virtue reversed as a function of the resource type. When the resource was money, participants' median willingness to pay to acquire the massage was \$40 compared with a median willingness to pay \$48 for the haircuts ($p < .2$, by Mann–Whitney U test). In contrast, when the resource was effort, participants' median willingness to pay to earn the massage was two surveys compared with a median willingness to pay only one survey for the haircuts ($p = .07$, by Mann–Whitney U test).

[4] Because the mood items were mistakenly omitted for some participants, the degree of freedom was 26.

To examine the moderating role of self-control guilt, we divided participants into two groups, high and low guilt, based on a median split of their guilt scores (means and standard deviations of guilt scores in the high vs. low guilt groups were $M = 6.2$, $SD = 1.6$, vs. $M = 1.6$, $SD = 1.4$, respectively). As expected, for high-guilt participants, the interaction between item and resource type was statistically significant and in the predicted direction, $F(1, 117) = 5.1$, $p < .05$, $MSE = 0.76$, $\eta^2 = .04$. Further, as shown in Figure 4 (upper panel), for high-guilt participants, the simple effects of item type were in the predicted directions in both the money and effort conditions ($p < .05$ and $p < .1$, respectively). In contrast, for low-guilt participants, the interaction between item and resource type did not approach statistical significance, $F(1, 104) = 0.4$, $p > .5$, $MSE = 1.24$, $\eta^2 = .003$. As shown in Figure 4 (lower panel), for these participants, the simple effect of item type was not significant in either the money condition or the effort condition (both $ps > .1$). 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 guilt drive the differential effect of effort versus money on willingness to pay.

Study 6: 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 a vice rather than a virtue but are willing to pay more money to acquire that virtue rather than the vice. This result was predicted on the basis of the notion that expending effort makes it easier to justify self-gratification, whereas spending money or income makes it more difficult.

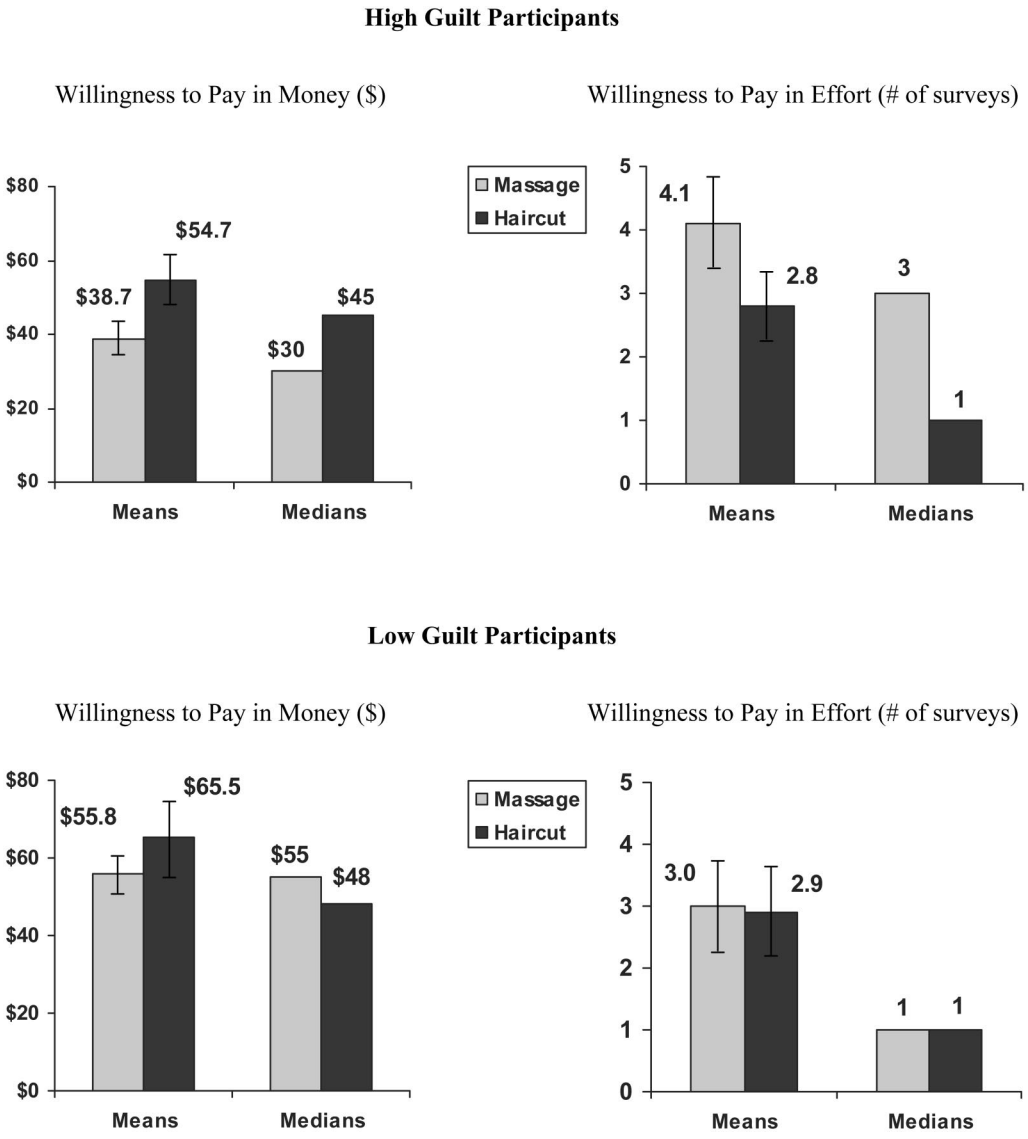

Figure 4. The role of guilt in willingness to pay in effort versus money (Study 5). Vertical lines indicate standard errors of the means.

Although the findings of Study 5 are consistent with the proposed justification routes, one might argue that restricting out-of-pocket monetary spending on vice is a reasonable (and normative) strategy, given that such expenditures directly reduce disposable 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 vice versus virtue is 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 vs. money). Accordingly, in Study 6, we investigated the implications of the two justification routes using a subtler manipulation of resource type. We examined willingness to pay in effort, but for one group of participants, we induced an income mindset by suggesting that effort can generate income. We hypothesized that, as in Study 5, participants would be willing to expend more effort to earn the vice than the virtue. However, consistent with the notion that it is difficult to justify spending income on self-gratification, we predicted a diametrically opposed effect when the interchangeability of effort and income is highlighted. To allow for a realistic test of the hypothesized interaction, we asked the participants in the current study to make decisions with real potential consequences.

Method

The participants were 116 students at Columbia University. They were randomly assigned to one of four conditions in a 2 (effort vs. income frame) × 2 (vice vs. virtue reward) between-subjects design. The two rewards, representing a relative vice and virtue 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!"

Participants were asked to complete a questionnaire that was described as intended to determine the appropriate reward level for an upcoming word anagram study. In the conditions in which the interchangeability of effort and income was implied (i.e., the income frame), participants were informed that in past studies the standard payment rate was $0.50 per anagram. They were told that the researchers decided to use different rewards in future anagram studies. In the conditions in which the interchangeability of effort and income was not implied (i.e., the effort frame), no mention was made of any previous anagram studies or their (monetary) compensation. Participants in all conditions were given an example of one anagram, its correct solution, and an invalid solution. They were then shown either the vice or the virtue reward (manipulated between subjects) and were asked to indicate the maximum number of anagrams they were willing to solve to earn that reward.

Results

Participants' willingness to expend effort revealed a significant interaction in the hypothesized direction between item type and perceived resource, $F(1, 112) = 8.5$, $p < .005$, $MSE = 4{,}220$, $\eta^2 = .07$. In the effort frame, participants were willing to expend significantly more effort to earn the video certificate than the school supplies certificate ($M = 102$ anagrams, $SD = 100$, vs. $M = 48$ anagrams, $SD = 38$), $t(58) = 2.8$, $p < .005$, Cohen's $d = 0.7$. In contrast, when the interchangeability of effort and income was implied (i.e., $0.50 an anagram), participants were willing to expend directionally less effort for the video certificate than for the school supplies certificate ($M = 53$ anagrams, $SD = 31$, vs. $M = 70$ anagrams, $SD = 65$), $t(54) = 1.2$, $p < .15$, Cohen's $d = 0.3$. These results as well as those of Study 5 underscore the consequences of the two justification routes for self-control decisions. It is noteworthy that in the present study, the reversal in willingness to pay occurred even though the actual type of resource being invested (i.e., the effort of solving anagrams) was held constant and its relation to income was made more or less salient.

General Discussion

Extensive research in psychology and other disciplines has examined the trade-off between immediate gratification and long-term goals. Such self-control dilemmas often create intrapersonal conflict and are seldom resolved using calculated cost–benefit analysis. Instead, as suggested by research on hyperopia, people often base their choices on righteous rules of prudence and frugality, which constrain self-gratification to situations that afford a ready justification. We proposed two key determinants of the ease of justifying self-gratification. In this section, we summarize our research and explore how the two justification routes can account for the findings of prior research.

Dimensions of Justification

We tested the idea that self-control decisions are 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 invested resource. Consistent with entitlement, participants were more likely to select vice over virtue after expending higher effort or (supposedly) excelling in a task. Consistent with the priming of prudence by resources perceived as income, the effects of higher achievement and effort were attenuated and even reversed when the interchangeability of effort and income was implied. Relatedly, a willingness to pay a greater amount for items of vice than for items of virtue was found when the resource expended was effort, but the reverse was true when the resource was perceived as income. The various findings, which replicated across a variety of self-control dilemmas (including some that were adopted from prior research), shed light on the determinants of justification and self-control.

In these studies, we explored the processes underlying the two routes to justification. We found that greater effort had a stronger effect on individuals for whom selecting vice over virtue represented a greater sacrifice of long-term goals. Further, all of the aforementioned effects were stronger among participants with greater (manipulated or measured) self-control guilt. Apparently, both intertemporal conflict and guilt create a need to justify immediate gratification, thereby increasing the weight of justification cues.

The present research indicates that decision makers are unaware of the influence of the justification routes. First, Study 1A demonstrated that self-control choices were influenced even by a supposedly unrelated effort manipulation. Second, throughout all six studies, participants' explanations of their decisions and their comments during the debriefing sessions did not reveal any self-insight into the effects of the justification cues. People make

choices as if they ask themselves "Can I justify self-gratification?" but they do not engage in a deliberate justification process. This idea is consistent with evidence that people are often unaware of the factors underlying their preferences (e.g., Nisbett & Wilson, 1977).

The Role of the Justification Routes in Prior Research on Self-Control

The two routes to justifying self-gratification can explain previous findings, whereby individuals required 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 loyalty programs (Kivetz & Simonson, 2002a) 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 loyalty programs) versus money (in purchases) makes it easier versus harder (respectively) to justify vices. Other research has shown that promised donations to charity are more effective in promoting vice than virtue (Strahilevitz & Myers, 1998), which suggests that donating and possibly other virtuous acts provide an entitlement to indulge.

Ferraro et al. (2005) recently demonstrated that awareness of one's mortality increases the likelihood of choosing chocolate cake over fruit salad. As hinted by their article's title ("Let Us Eat and Drink, For Tomorrow We Shall Die"), an entitlement-based justification may contribute to such an effect, as mortality salience may serve as an excuse for immediate gratification. Relatedly, the literature on mood regulation demonstrates that sad compared with neutral mood increases the likelihood of self-gratification (e.g., Baumann et al., 1981). Here, too, entitlement-based justification may play a role, insofar that attempts to repair negative mood offer a license to violate self-control rules.

Baumeister and his colleagues have proposed an ego depletion model of self-control (e.g., Muraven & Baumeister, 2000). According to this model, exerting self-control depletes a limited self-regulatory resource, thereby reducing the ability to exert self-control in subsequent tasks. As explained earlier, ego depletion cannot account for the present findings. First, self-control choices were affected even when participants' actual effort investment was held constant and higher effort or excellence was defined relative to the (supposed) effort or performance of others. That is, the entitlement route to justification operated even when the low- and high-effort (or excellence) conditions did not differ in terms of participants' self-regulatory resources. Second, the moderating effect of (situational and chronic) self-control guilt is consistent with the proposed justification processes but cannot be explained within an ego-depletion model. Third, ego depletion cannot account for the observed reversals in the effects of higher achievement and effort when the interchangeability of effort and income was implied.

We speculate that the entitlement route to justification plays an important role in explaining prior results attributed to ego depletion. Specifically, the finding that exerting self-control (e.g., forcing oneself to eat radishes instead of tempting chocolates) impairs subsequent self-control (Baumeister et al., 1998) may represent a case of self-gratification that is motivated by an (unconscious) justification cue. Similar to mortality salience and sad mood, a prior exertion of self-control may offer a license to sin. There is a compelling need for further research that contrasts and integrates the justification and ego-depletion approaches to self-control.

Our research further suggests that framing a decision narrowly as a relatively unique event (Herrnstein & Prelec, 1992a; Kahneman & Lovallo, 1993; Rachlin, 1995) will increase choices of vice. Specifically, it may be easier to justify self-gratification when the inherent sin is construed as singular and/or occurs outside of one's regular life. 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 [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 select vices.

The potential ease of justifying self-gratification in narrow, isolated decisions may have contributed to the results of Read et al. (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 greater 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 the vices when making sequential choices, because each selection of vice could be excused as a one-time transgression.

The two justification routes 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 sin, it is easier to justify the acquisition of smaller rations of vice ("a little indulgence can't hurt"). Smaller purchases of vices are also easier to justify because they are cheaper and do not materially deplete available income. Current ads by Godiva exploit this built-in justification of minor, inexpensive vices: "Give yourself a treat for only $2.50."

Finally, a view of self-control as dependent on the ease of justification can account for preference reversals between separate and joint evaluations of relative virtues versus vices (Kivetz & Simonson, 2002b). Whereas in direct choices, people are more likely to prefer virtues over vices, in separate evaluations, they exhibit more positive preferences toward vices than virtues. Such preference reversals are consistent with a justification process because in direct choices, selecting vices requires an explicit sacrifice of a virtuous option and, therefore, is hard to justify.

Future researchers 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 vice and luxury, à la "keeping up with the Joneses." More research is needed to further improve understanding of the affective, cognitive, and motivational processes involved in the interplay between justification and self-control.

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 and Social Psychology, 40,* 1039–1046.

Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology, 74,* 1252–1265.

Dhar, R., & Simonson, I. (1999). Making complementary choices in consumption episodes: Highlighting versus balancing. *Journal of Marketing Research, 36,* 29–44.

Ferraro, R., Shiv, B., & Bettman, J. R. (2005). Let us eat and drink, for tomorrow we shall die: Effects of mortality salience and self-esteem on self-regulation in consumer choice. *Journal of Consumer Research, 32,* 65–75.

Festinger, L. (1957). *A theory of cognitive dissonance*. Oxford, England: Row, Peterson.

Fujita, K., Trope, Y., Liberman, N., & Levin-Sagi, M. (2006). Construal levels and self-control. *Journal of Personality and Social Psychology, 90,* 351–367.

Giner-Sorolla, R. (2001). Guilty pleasures and grim necessities: Affective attitudes in dilemmas of self-control. *Journal of Personality and Social Psychology, 80,* 206–221.

Herrnstein, R. J., & Prelec, D. (1992a). Melioration. In G. Loewenstein & J. Elster (Eds.), *Choice over time* (pp. 235–263). New York: Russell Sage Foundation.

Herrnstein, R. J. & Prelec, D. (1992b). A theory of addiction. In G. Lowenstein & J. Elster (Eds.), *Choice over time* (pp. 331–360). New York: Russell Sage Foundation.

Kahneman, D., & Lovallo, D. (1993). Timid choices and bold forecasts: A cognitive perspective on risk taking. *Management Science, 39,* 17–31.

Kivetz, R., & Keinan, A. (2006). Repenting hyperopia: An analysis of self-control regrets. *Journal of Consumer Research, 33,* 273–282.

Kivetz, R., & Simonson, I. (2002a). Earning the right to indulge: Effort as a determinant of customer preferences towards frequency program rewards. *Journal of Marketing Research, 38,* 155–170.

Kivetz, R., & Simonson, I. (2002b). Self-control for the righteous: Toward a theory of precommitment to indulge. *Journal of Consumer Research, 29,* 199–217.

Lipsey, R. G. (1989). *An introduction to positive economics* (7th ed.). London: Weidenfeld and Nicolson.

Loewenstein, G. F. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Processes, 65,* 272–292.

Maslow, A. H. (1970). *Motivation and personality* (2nd ed.). New York: Harper & Row.

Metcalfe, 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.

Muraven, M., & Baumeister, R. F. (2000). Self-regulation of limited resources: Does self-control resemble a muscle? *Psychological Bulletin, 126,* 247–259.

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.

O'Guinn, T. C., & Faber, R. J. (1989). Compulsive buying: A phenomenological exploration. *Journal of Consumer Research, 16,* 147–157.

Paulhus, D. L. (1991). Measurement and control of response bias. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 17–59). New York: Academic Press.

Prelec, D., & Herrnstein, R. J. (1991). Preferences or principles: Alternative guidelines for choice. In R. J. Zechenhauser (Ed.), *Strategy and choice* (pp. 319–340). Cambridge, MA: MIT Press.

Rachlin, H. (1995). Self control: Beyond commitment. *Behavior and Brain Sciences, 18,* 109–159.

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,* 257–273.

Schelling, T. C. (1992). Self-command: A new discipline. In G. Loewenstein & J. Elster (Eds.), *Choice over time* (pp. 167–176). New York: Sage.

Schwarz, N., Bless, H., Strack, F., Klumpp, G., Rittenauer-Schatka, H., & Simons, A. (1991). Ease of retrieval as information: Another look at the availability heuristic. *Journal of Personality and Social Psychology, 61,* 195–202.

Scitovsky, T. (1992). *The joyless economy: The psychology of human satisfaction* (Rev. ed.). New York: Oxford University Press.

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 and Social Psychology, 74,* 285–293.

Shiv, B., & Fedorikhin, A. (1999). Heart and mind in conflict: Interplay of affect and cognition in consumer decision making. *Journal of Consumer Research, 26,* 278–282.

Simonson, I. (1990). The effect of purchase quantity and timing on variety seeking behavior. *Journal of Marketing Research, 27,* 150–162.

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,* 434–446.

Tangney, J. P., & Dearing, R. L. (2002). *Shame and guilt*. New York: Guilford Press.

Thaler, R. H. (1985). Mental accounting and consumer choice. *Marketing Science, 4,* 199–214.

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

Trope, Y., & Liberman, N. (2000). Time-dependent changes in preferences. *Journal of Personality and Social Psychology, 79,* 876–889.

Trope, Y., & Neter, E. (1994). Reconciling competing motives in self-evaluation: The role of self-control in feedback seeking. *Journal of Personality and Social Psychology, 66,* 646–657.

Valence, G., d'Astous, A., & Fortier, L. (1988). Compulsive buying: Concept and measurement. *Journal of Consumer Policy, 11,* 419–433.

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

Wertenbroch, K. (1998). Consumption self-control by rationing purchase quantities of virtue and vice. *Marketing Science, 17,* 317–337.

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