

# Work or Fun? How Task Construal and Completion Influence Regulatory Behavior

JULIANO LARAN  
CHRIS JANISZEWSKI

Volitional behaviors can be construed as “work” (extrinsically motivated) or as “fun” (intrinsically motivated). When volitional behaviors are construed as an obligation to work, completing the behavior depletes a consumer, and subsequent self-control becomes more difficult. When volitional behaviors are construed as an opportunity to have fun, completing the behavior vitalizes a consumer, and subsequent self-control becomes easier. Six studies show how individual differences and contextual factors influence the construal of a task, the motivation for completing it, and subsequent regulatory behavior.

Self-control failures among the U.S. population are at epidemic levels. Approximately one in five U.S. citizens over age 12 (46.2 million people) admits to binge drinking at least once per month (U.S. Department of Health and Human Services 2002). It is estimated that between 17 million and 37 million Americans exhibit sexually compulsive behaviors (i.e., uncontrollable sexual behaviors that result in negative consequences for the person and relevant others) three or more times per year (Hagedorn and Juhnke 2005). Approximately 10 million people suffer from clinical eating disorders (e.g., anorexia, bulimia) with an additional 25 million suffering at least one form of binge-eating disorder (Godfrey 2004). Approximately 2.4 million adults engage in uncontrolled buying, as characterized by an invasive need to shop, an inability to control shopping behavior, and a continued state of shopping-related duress (e.g., negative mood, social dysfunction, employment difficulty, and financial problems; Lejoyeux et al. 1996). Regrettably, many

U.S. citizens experience more than one serious form of self-control failure (Carnes 1992; Griffin-Shelley, Sandler, and Lees 1992). The importance of understanding the causes of self-control failures has led to a significant amount of research in the consumer domain (e.g., Kivetz and Simonson 2002; Laran 2010a, 2010b; Laran and Janiszewski 2009; Mukhopadhyay, Sengupta, and Ramanathan 2008; Ramanathan and Menon 2006; Ramanathan and Williams 2007).

One of the most popular explanations of self-control failure is the depletion hypothesis (Baumeister et al. 1998; Vohs and Faber 2007). The depletion hypothesis invokes the muscle metaphor to explain behavioral control. It is posited that people control behavior by drawing on a limited supply of regulatory resources. As a person engages in more frequent or more difficult acts of self-control, the regulatory resource becomes depleted (i.e., the muscle becomes tired), and the person becomes more likely to exhibit regulatory failure. Further, it is not the act of self-control that depletes but the effort that accompanies the execution of the act. There is accumulating evidence that a wide variety of effortful, regulatory behaviors (e.g., thought suppression, sustained attention, overriding automatic acts) are depleting (e.g., Muraven, Tice, and Baumeister 1998; Pocheptsova et al. 2009; Schmeichel, Vohs, and Baumeister 2003; Vohs and Faber 2007; Wan et al. 2010). On the basis of this evidence, it is difficult to offer advice about how to address the problem of self-control failures. Short of asking people to reduce depleting activities or to rest, effective remedies for self-control failures are not obvious (Muraven et al. 2005; but see Agrawal and Wan 2009 and Oaten and Cheng 2006).

We propose a different approach to understanding self-

---

Juliano Laran (laran@miami.edu) is assistant professor of marketing, University of Miami, Coral Gables, FL 33124-6524. Chris Janiszewski (chris.janiszewski@warrington.ufl.edu) is the JCPenney Professor of Marketing, Warrington College of Business Administration, University of Florida, P.O. Box 117155, Gainesville, FL 32611-7155. The authors thank Kathleen Vohs and Ayelet Fishbach for their helpful comments on the manuscript. The authors also acknowledge the helpful input of the editor, associate editor, and three reviewers.

*Debbie MacInnis served as editor and Gavan Fitzsimons served as associate editor for this article.*

*Electronically published August 24, 2010*

control failure. We contend that self-control success and failure can be a natural consequence of engaging in volitional behavior. Volitional behaviors can be construed as “work” (i.e., extrinsically motivated) or as “fun” (i.e., intrinsically motivated; DeCharms 1968). When volitional behaviors are construed as an obligation to work, the behavior depletes resources, and self-control becomes more difficult. Yet, depletion likely exerts its influence on self-control after completion of the behavior. If self-control were to fail before completion of the behavior, it would be difficult for a person to complete most volitional behaviors. When volitional behaviors are construed as an opportunity to have fun, the behavior vitalizes, and self-control becomes easier. Like depletion, vitality likely exerts its influence on self-control after completion of the behavior. In most cases, it is the completion of a behavior that provides a sense of competence, achievement, and satisfaction.

We use six experiments to show that the construal of a volitional behavior can depend on individual differences or on contextual framing. In experiments 1A and 1B, we show that low-self-control people are more likely to construe volitional behaviors as obligations to work and that high-self-control people are more likely to construe volitional behaviors as opportunities to have fun. As a consequence, low-self-control people who complete (do not complete) a volitional behavior exhibit (do not exhibit) future regulatory failure. In contrast, high-self-control people who complete (do not complete) a volitional behavior exhibit (do not exhibit) future regulatory success. Experiment 2 shows that high-self-control people can be made to act like low-self-control people when an initial effortful behavior is unambiguously framed as an obligation to work. Experiment 3 shows that low-self-control people can be made to act like high-self-control people when an initial effortful behavior is unambiguously framed as an opportunity to have fun. Experiment 4 shows that when an initial behavior is easy (vs. difficult) and the behavior is complete, low-self-control people become less likely to exhibit regulatory failure (i.e., their obligation to work was limited), and high-self-control people become more likely to exhibit regulatory failure (i.e., their opportunity to have fun was limited). Experiment 5 shows that when extrinsic rewards are made an explicit consequence of performing the initial behavior, high-self-control people no longer derive vitality from performing the behavior. Thus, high-self-control people become more likely to experience regulatory failure.

## SELF-CONTROL AND MOTIVATED BEHAVIOR

Perspectives on self-control, and by extension a loss in self-control, can be traced to assumptions about motivated behavior. Theories of motivated behavior can be broadly classified into need deficit theories and need nutrient (surplus) theories (Deci and Ryan 2000). We begin with a discussion of how these theories influence thought about regulatory behavior.

## Deficit Needs and Self-Control

The deficit view of motivated behavior assumes that a person strives to maintain homeostasis in physiological and psychological systems. Initially, motivated behavior occurs because there is a deficit in innate physiological needs. For example, when a child experiences a deficit in food or water, a drive develops in proportion to the size of the deficit (Hull 1943). Behaviors that successfully reduce the drive are reinforced. With maturation, basic physiological needs generalize to psychological needs that are satisfied by similar reward profiles. Thus, indulgent food (e.g., Baumeister et al. 1998) and sexual stimuli (e.g., Van den Bergh, DeWitte, and Warlop 2008) come to meet psychological needs, as do merchandise (e.g., Rook 1987), cigarettes (e.g., O’Connell, Schwartz, and Shiffman 2008), and alcohol (e.g., Muraven et al. 2005).

Strictly speaking, self-control is the regulation of the behaviors that meet physiological or psychological needs. To the extent behaviors are instrumental in meeting needs, limiting the execution of these behaviors is effortful. The ego-depletion model (e.g., Baumeister et al. 1998) discusses the consequences of effortful regulation. The ego-depletion model of self-control assumes that acts of self-control require an inner strength, that acts of control deplete this strength (i.e., resource depletion), and that successful self-control depends on the amount of resources required as compared to the amount of resources available (Muraven and Baumeister 2000). This emphasis on self-control resources has led to a broadening of the definition of acts that deplete resources to those that require some form of regulation. For example, avoiding attention to a certain visual input in a complex visual environment (e.g., Vohs and Faber 2007), suppressing thoughts about certain topics (e.g., Muraven et al. 1998), making difficult decisions (e.g., Wang et al. 2010), and overriding a well-learned rule (e.g., Tice et al. 2007) have all been shown to lead to losses of self-control. These demonstrations suggest that any volitional act containing a regulatory component will deplete resources used to sustain self-control.

## Surplus Needs and Self-Control

The second approach to understanding motivation is the surplus view (Deci and Ryan 1985, 2000). Under the surplus view, psychological well-being depends on psychological nutrients (i.e., a surplus resource). Nutrient needs support exploration, play, achievement, and other forms of behavior that are difficult to link to physiological or psychological deficits. Nutrient needs include competence, autonomy, affiliation, power, and so on (e.g., Deci and Ryan 2000). When behavior is motivated by nutrient needs, a person experiences a sense of vitality or energy as a consequence of performing the behavior (Ryan and Deci 2008). In effect, volitional behavior that is driven by nutrient needs results in an increase in energy. The nutrient view of motivation is exemplified by self-determination theory

(Deci and Ryan 1985) and flow theory (Csikszentmihalyi 1975).

The nutriment approach to self-control hypothesizes that self-control success is a consequence of a resource surplus (e.g., vitality). When people engage in intrinsically motivated behavior (i.e., behavior that makes a person feel competent and self-determined), the behavior creates a psychological benefit (vitality) that can support self-control. Deci and Ryan (2000) observe that a felt sense of autonomy (i.e., that the regulatory act is volitional and consistent with the person's sense of self) promotes regulation because it promotes intrinsic motivation. For example, morbidly obese people who experience a support system emphasizing autonomy more successfully sustain weight loss over 23 months (Williams et al. 1996). Likewise, autonomy support enhances glucose control in diabetes patients over 1 year (Williams et al. 2004). Autonomy support has also been linked to sustained smoking cessation over 30 months (Williams et al. 2002). In each of these situations, consumers were encouraged to identify an internal locus of causality (i.e., a motivation for the behavior that is within one's self) as opposed to an external locus of causality (i.e., motivation by extrinsic rewards). Thus, unlike ego-depletion theory, a surplus view of motivation proposes that volitional behavior is not uniformly depleting—volitional behavior can create vitality when it is intrinsically motivated.

### Extrinsic and Intrinsic Motivation

The discussion of the deficit and surplus views of motivation suggests that extrinsic and intrinsic motivation are instrumental in the experience of depletion or vitality. As might be expected, the conceptualization of the relationship among these constructs depends on the theorist's view of motivation. For example, Muraven, Gagné, and Rosman (2008) use a deficit view to link ego-depletion theory to motivation. They find that forced compliance (e.g., resisting cookies owing to the demands of a callous experimenter) leads to more depletion than voluntary compliance (e.g., resisting cookies owing to an informative explanation about the importance of the research). Their explanation is as follows. First, volitional behavior depletes resources. Second, when the motivation for effortful behavior is intrinsic, people experience vitality. Third, vitality helps replenish the loss of self-control resources. Thus, relative to a control group, an extrinsically motivated initial behavior should result in a lack of regulation on a second behavior (a vigilance task in which the number 64 had to be found in a list of numbers), whereas an intrinsically motivated behavior should not influence subsequent regulation. The null effect in the intrinsically motivated group is a function of two countervailing forces: depletion and vitality replenishment.

Muraven et al. (2008) are the first to show that extrinsic and intrinsic motivation can influence subsequent regulatory control. Yet, the Muraven et al. (2008) perspective is deficit based in that it assumes any volitional behavior is, by definition, depleting. A reading of the motivation literature suggests a more balanced view of the influence of volitional

behavior. It may be that extrinsically motivated behavior has the potential to be depleting, whereas intrinsically motivated behavior has the potential to be invigorating (create vitality). In fact, we propose that intrinsically motivated behavior does not deplete. We refer to this conceptualization as the “motivational source” perspective because the emphasis is on the extrinsic/intrinsic source of the motivation, as opposed to adjustments to the amount of depletion.

Muraven et al.'s (2008) deficit-based perspective and the proposed motivational source perspective are difficult to differentiate because they make a common prediction—that is, extrinsically motivated volitional behavior should result in less self-control than intrinsically motivated volitional behavior. Yet, there is one area in which the predictions of these two perspectives diverge. The perspectives make different predictions with respect to framing the degree of the volitional task completion, which has been demonstrated to have an important influence on behavior (Laran 2010c). To illustrate, consider an ongoing volition task that can be framed as incomplete (e.g., “there is more to do”) versus complete (e.g., “you are finished”). The deficit-based perspective assumes depletion is a function of whether the behavior is intrinsically or extrinsically motivated. In contrast, the motivational source perspective assumes that depletion and vitality depend on whether an initial task is perceived as incomplete or complete—depletion and vitality are experienced after task completion. If depletion and vitality were experienced before task completion, then it would be beneficial to abandon volitional acts before completion. Frequent task abandonment would be dysfunctional. Completion of a task that is seen as an obligation to work should lead to regulatory failure (i.e., “I am done working”), whereas completion of a task that is seen as an opportunity to have fun should lead to regulatory success (i.e., “I am done having fun”).

### Dispositional Influences on Motivation and Regulation

Dispositional factors can encourage a consumer to construe a volitional task as extrinsically or intrinsically motivated, which, in turn, can influence subsequent regulatory behavior. Three pieces of evidence support this hypothesis. First, there is considerable evidence that people vary in their tendency to be intrinsically or extrinsically motivated when engaging in volitional behavior (Brown and Ryan 2004; Kasser and Ryan 1996). Second, people can express a relationship between intrinsic (extrinsic) motivation and regulatory success (failure). Ryan and colleagues (Grolnick and Ryan 1987; Williams et al. 1998, 2009) asked people to indicate the extent to which they engage in education, health, and social regulatory behavior and why they do it. The more closely the participant identified with regulation, the more likely the participant was to identify intrinsic reasons for the regulation. Third, Babin, Darden, and Griffin (1994) showed that utilitarian (hedonic) consumption activities were thought of as work (fun) and that these perceptions

varied for different individuals. Together, these findings suggest that people vary in their general motivation for behavior, that they are aware that their motivational disposition affects their regulatory control (i.e., people know they are low or high in self-control), and that they associate different motivational orientations with work or fun. This suggests that people who are more often extrinsically motivated (i.e., low-self-control people) are more likely to perceive volitional behaviors as an obligation to work, and people who are more often intrinsically motivated (i.e., high-self-control people) are more likely to perceive volitional behavior as an opportunity to have fun.

Combining these insights about the relationship between motivation and self-control with the predictions of the motivational source perspective about incomplete and complete volitional behavior leads to the following hypotheses:

- H1a:** Low-self-control people are more likely to exhibit regulatory failure when an initial volitional behavior is perceived as complete, as compared to incomplete.
- H1b:** High-self-control people are more likely to exhibit regulatory success when an initial volitional behavior is perceived as complete, as compared to incomplete.

### Situational Influences on Motivation and Regulation

An implicit assumption of hypotheses 1a and 1b is that low- and high-self-control people are able to construe the same behavior in different ways. We assume this construal bias behaves like any other type of perceptual bias: the construal can be altered via framing. In other words, a behavior can be framed so that it is construed as an obligation to work or as an opportunity to have fun. When a behavior is framed as an obligation to work, motivation will be extrinsic. Thus, task completion, as opposed to task interruption, will encourage subsequent regulatory failure, regardless of the self-control tendencies of the individual. When a behavior is framed as an opportunity to have fun, motivation will be intrinsic. Thus, task completion, as opposed to task interruption, will encourage subsequent regulatory success, regardless of the self-control tendencies of the individual.

- H2a:** When an initial effortful behavior is framed as an obligation to work, people are more likely to exhibit regulatory failure when the behavior is perceived as complete, as compared to incomplete.
- H2b:** When an initial effortful behavior is framed as an opportunity to have fun, people are more likely to exhibit regulatory success when the behavior is perceived as complete, as compared to incomplete.

## EXPERIMENTS 1A AND 1B

Low- and high-self-control people (a measured variable) were asked to engage in a volitional behavior that could be perceived as work (extrinsically motivated) or fun (intrinsically motivated). After the initial behavior was performed, it was framed to be complete or incomplete. Subsequently, the participant had the opportunity to engage in regulatory behavior that required limiting immediate gratification (experiment 1A) or sustaining performance on a tedious task (experiment 1B). Congruent with hypotheses 1a and 1b, we anticipated that perceived task completion would lead to more (less) regulatory failure in a subsequent task for low- (high-) self-control people.

### Experiment 1A

In experiment 1A, we investigated how performing an initial volitional behavior influenced a person's ability to limit immediate gratification. The initial volitional behavior involved following strict instructions while tasting and evaluating a small amount of two different candies. Subsequently, participants engaged in unrelated tasks while the candy remained in close proximity. The key dependent measure was the consumption of additional candy during the performance of the unrelated tasks.

*Participants and Design.* Participants were 106 undergraduate business students from the University of Florida who participated in exchange for course credit. The experiment used a two-factor design. The participant's level of self-control was a measured variable, while task completion (complete vs. incomplete) was manipulated between subjects.

*Procedure.* Participants entered a behavioral lab and were seated in front of personal computers. Instructions told participants that they would participate in three studies, supposedly unrelated. The first study gave participants the following instructions: "Candy manufacturers have found that consumers eat more candy when it is not messy. Candy that makes a person's fingers sticky, clothes dirty, or gets stuck in one's teeth is less likely to be purchased and consumed. We would like to assess your perceptions of the 'messiness' of two candies and how it influences your intent to purchase them. On your desk, you will see a bag of Skittles, a bag of M&M's, and two bowls. Empty the bag of Skittles into one bowl and the bag of M&Ms into the other bowl."

Participants were told to click on a Continue button to start the experiment. They were first told to take one Skittle and hold it between their thumb and forefinger for 30 seconds and then place it on their napkin. They were then asked how sticky their fingers were, how much food dye was on their fingers, and how oily their fingers were. Participants were then told to put one Skittle in their mouth for 5 seconds, take it out, and put it on a napkin in their workstation. They were then asked how bad the stain on the napkin was, how likely they were to get a similar stain on their clothes, and how likely they were to buy that candy in the future. The

procedure was then repeated for M&Ms. Note that the procedure required two Skittles and two M&Ms. Also note that the instructions did not tell participants to eat the candy. Napkins collected after the session confirmed that participants complied with these instructions.

Participants in the completed-initial-task condition were then told: "You have now finished the candy experiment. Click on the continue button to advance to the next study." The next screen was an Institutional Review Board informed consent for study 2. After reading and agreeing to the informed consent, participants moved on to the next task. Participants in the incomplete-initial-task condition were told: "Click on the continue button in order to answer additional questions about your behavior." This condition did not include an Institutional Review Board informed-consent screen. This instruction led participants to believe that study 1 was ongoing.

The next task was a 20-minute activity that elicited opinions about political issues. The political opinion task was clearly unrelated to the initial candy eating task, but participants were not notified of this fact. The bowls containing Skittles and M&Ms remained at the participants' workstations during the time they completed the remaining tasks. Participants were not given any instruction about whether they could eat the candies.

The final task, called "College Students' Habits," asked a series of filler questions and 13 questions about participants' self-control (Tangney, Baumeister, and Boone 2004). Examples of the self-control scale items (1 = strongly disagree; 9 = strongly agree) are "I am good at resisting temptation," "I have a hard time breaking bad habits," and "I am lazy."

*Dependent Measure.* The candy remaining in the bowls at the end of the experimental session was weighed. The amount eaten (in grams) was the indicator of regulatory behavior. Participants who emptied the bowls of candy into their purse or knapsack (in the current experiment, one participant in each task-completion condition) were excluded from the analysis in this and subsequent studies.

*Manipulation Check.* An independent sample of 121 participants from the same subject pool was used to confirm that low-self-control people perceived the initial task as work, and high-self-control people perceived the initial task as fun. Participants experienced the experiment 1A procedure through the task-completion manipulation. Then participants were asked to report how much they perceived the task to be (1) an obligation to work and (2) an opportunity to have fun, on a scale ranging from 1 = "not at all" to 7 = "a lot." Next, participants indicated how tired (depletion measure), stressed, and anxious they felt, on a scale ranging from 1 = "not at all" to 7 = "a lot." After 35 minutes of unrelated tasks, participants completed the Tangney et al. (2004) self-control scale. Additional measures (conscientiousness, impulsivity, self-esteem, and perfectionism) were included to address potential alternative hypotheses.

The results were consistent with the intended manipula-

tion. Two regression analyses showed that low-self-control people perceived the initial task as more of an obligation to work ( $M_{LSC} = 3.1$ ,  $M_{HSC} = 2.3$ ;  $\beta = -.55$ ,  $p < .01$ ), whereas high-self-control people perceived the initial task as more of an opportunity to have fun ( $M_{LSC} = 4.6$ ,  $M_{HSC} = 5.4$ ;  $\beta = .47$ ,  $p < .01$ ). Consistent with these findings, low-self-control people reported feeling more depleted ( $\beta = -.22$ ,  $p < .05$ ), more stressed ( $\beta = -.25$ ,  $p < .01$ ), and more anxious ( $\beta = -.57$ ,  $p < .01$ ). As expected, there was no effect of the task-completion manipulation (all  $p > .63$ ) or the self-control by task completion interaction (all  $p > .58$ ), on any of the five manipulation check measures. Finally, conscientiousness (lowest  $p = .51$ ), impulsivity (lowest  $p = .20$ ), self-esteem (lowest  $p = .31$ ), and perfectionism (lowest  $p = .37$ ) did not influence the results and were not influenced by the experimental manipulations or their interaction.

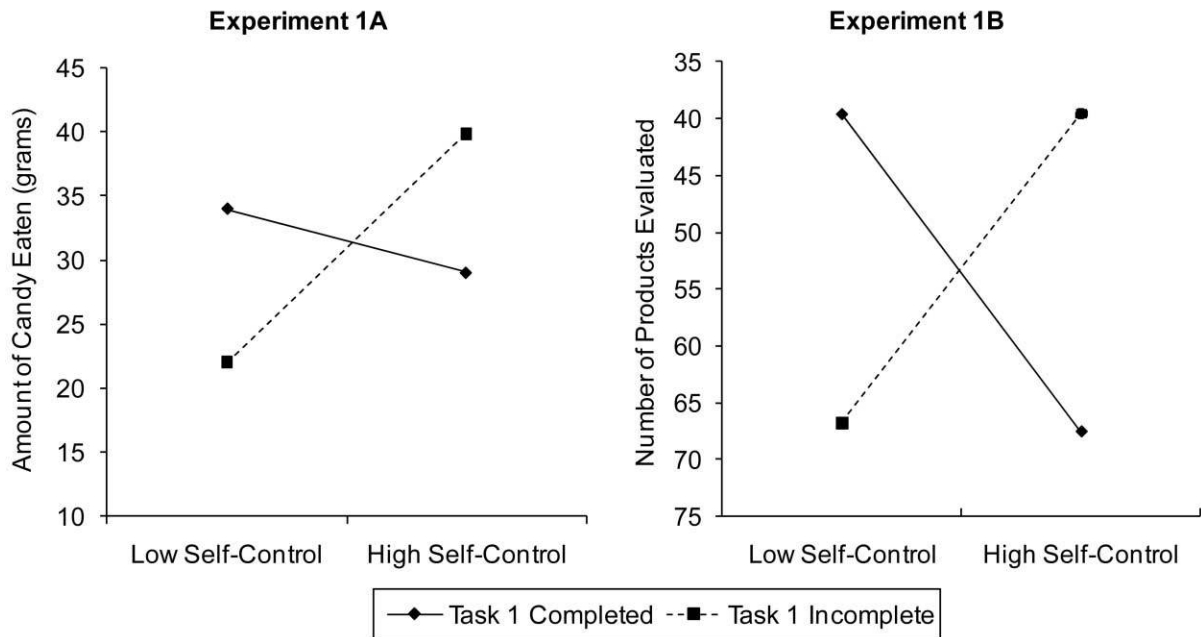
*Analysis.* The 13 items measuring self-control were highly correlated ( $\alpha = .72$ ). Thus, we collapsed these items to form a unitary measure of self-control. Following the Aiken and West (1991) procedure (see also Fitzsimons 2008), the amount of candy eaten was regressed on the individuals' self-control index, task completion (i.e., a dummy variable for whether the initial task was framed as completed or incomplete), and their interaction. The results are presented in figure 1. There was an interaction between the self-control and the task-completion factors ( $\beta = 11.50$ ,  $p < .05$ ). In order to clarify the nature of this interaction, we performed a spotlight analysis at 1 SD below and 1 SD above the mean of self-control. At 1 SD below the mean of self-control (i.e., low self-control), participants ate more candy in the completed than in the incomplete-task condition ( $\beta = -11.92$ ,  $p < .05$ ). At 1 SD above the mean of self-control (i.e., high self-control), participants ate less in the completed than in the incomplete-task condition ( $\beta = 10.83$ ,  $p < .05$ ).

## Experiment 1B

In experiment 1B, we investigated how an initial volitional behavior influenced a person's ability to sustain performance on a tedious task. The initial volitional behavior involved making a series of difficult choices involving trade-offs among three options with negatively correlated attributes, adapted from Wang et al. (2010). Choices involving difficult trade-offs have been used successfully in prior studies on regulatory failure (Dewitte, Bruyneel, and Geyskens 2009; Schmeichel et al. 2003; Wang et al. 2010). Subsequently, participants had the opportunity to voluntarily evaluate products. Repeated product assessment is similar to regulatory tasks that have been studied in the social sciences (e.g., sustaining a handgrip, Baumeister et al. [1998]; finding embedded figures, Vohs and Heatherton [2000]; concentrating on a detection task, Muraven et al. [2008]) but is more marketing oriented. The key dependent measure was the number of product assessments performed, with fewer product assessments indicating less regulatory behavior.

FIGURE 1

RESULTS OF EXPERIMENTS 1A AND 1B



NOTE.—In experiment 1A (1B), higher (lower) values represent less self-control. Low-self-control and high-self-control values are  $\pm 1$  SD from the mean.

**Participants and Design.** Participants were 134 undergraduate business students from the University of Miami who participated in exchange for course credit. The experiment used a two-factor design. The participant's level of self-control was a measured variable, while task completion (complete vs. incomplete) was manipulated between subjects.

**Procedure.** Participants entered the behavioral lab and were seated in front of personal computers. Instructions told participants that they would participate in three studies, supposedly unrelated. The first study gave participants the following instructions: "You are going to see a series of product descriptions. Please choose one of the options in each set of three. Assume that the alternatives in each choice set are similar in all other attributes. Be careful when making each decision. Be sure you choose the best option from each set."

For each choice set, choosing a given option owing to a preference for better performance on one attribute level meant giving up performance on a second attribute (see table A1). After making four choices, participants in the completed-initial-task condition were told that they were done with study 1, clicked on a Continue button, and moved to study 2 after seeing a new Institutional Review Board informed consent. Participants in the incomplete-initial-task condition were told to click on the Continue button in order

to answer "additional questions about their behavior." All participants engaged in a task called "Product Ads" with the following instructions: "Please evaluate the following products based on their attributes. Note that there are an infinite number of products for evaluation. Therefore, we added the option of quitting the study. You may quit whenever you want to by clicking on the appropriate button on the screen."

Each product was presented on a separate screen and was evaluated on a scale ranging from 1 (really bad) to 9 (really good). Each product was described by three attributes. Products were from electronic categories, such as computers (e.g., 2 gigabytes of random-access memory, 160-megabyte hard drive, 2.0 gigahertz processor speed), mp3 players (e.g., 30 gigabytes, 6.7 ounces, 2-year warranty), and televisions (e.g., 39-inch screen, plasma, built-in surround sound). The product descriptions were similar in terms of which attributes they had, which made the task tedious. Participants needed to perform self-control to sustain performance at this task rather than quit the experiment and engage in alternative behaviors. After rating each product, the participant was given the opportunity to continue the task (i.e., select a Continue button located right below the rating scale) or to end the task (i.e., select a "click here if you want to quit this task" button located right below the Continue button). The number of products each participant was willing to

evaluate before quitting the task was the measure of self-control.

**Manipulation Check.** An independent sample of 122 participants from the same subject pool was used to confirm that low-self-control people perceived the initial choice task as work, and high-self-control people perceived the initial choice task as fun. Participants experienced the experiment 1B procedure through the task-completion manipulation and then completed the five manipulation check measures and the four alternative hypotheses measures. Two regression analyses showed that low-self-control people perceived the initial task as more of an obligation to work ( $M_{LSC} = 4.2$ ,  $M_{HSC} = 3.4$ ;  $\beta = -.45$ ,  $p < .01$ ), whereas high-self-control people perceived the initial task as more of an opportunity to have fun ( $M_{LSC} = 3.2$ ,  $M_{HSC} = 4.0$ ;  $\beta = .41$ ,  $p < .01$ ). Consistent with these findings, low-self-control people reported feeling more depleted ( $\beta = -.30$ ,  $p < .05$ ), more stressed ( $\beta = -.47$ ,  $p < .01$ ), and more anxious ( $\beta = -.38$ ,  $p < .01$ ). As expected, there was no effect of the task-completion manipulation (all  $p > .46$ ) or the self-control by task completion interaction (all  $p > .36$ ), on any of the five manipulation check measures. Finally, conscientiousness (lowest  $p = .70$ ), impulsivity (lowest  $p = .24$ ), self-esteem (lowest  $p = .68$ ), and perfectionism (lowest  $p = .32$ ) did not influence the results and were not influenced by the experimental manipulations or their interaction.

**Analysis.** The number of products assessed was regressed on the individuals' self-control index, task completion (i.e., a dummy variable for whether the initial task was framed as complete or incomplete), and their interaction. The results are presented in figure 1. The Y-axis is set from high to low, so that higher points on the graph correspond to more regulatory failure. There was a significant interaction between the self-control and the task-completion variables ( $\beta = -31.00$ ,  $p < .01$ ). At 1 SD below the mean of self-control, participants elected to evaluate fewer products in the completed-task condition than in the incomplete-task condition ( $\beta = 27.24$ ,  $p < .01$ ). At 1 SD above the mean of self-control, participants elected to evaluate more products in the completed-task condition than in the incomplete-task condition ( $\beta = -27.94$ ,  $p < .01$ ).

## Discussion

We hypothesized that low- and high-self-control people would construe an initial volitional behavior in different ways. Low-self-control people are more likely to construe a volitional behavior as an obligation to work (i.e., extrinsically motivated). Successful completion of the volitional behavior should result in poorer regulation of subsequent behavior because depletion accrues with completion, whereas the perception that the volitional behavior is ongoing should not affect regulation. High-self-control people are more likely to construe a regulatory behavior as an opportunity to have fun (i.e., intrinsically motivated). Successful completion of the volitional behavior should result in better

regulation of subsequent behavior because of the vitality that accrues from completion, whereas the perception that the volitional behavior is ongoing should not enhance regulation. This result was observed whether the initial act required delaying gratification (experiment 1A) or sustaining performance (experiment 1B). When limiting candy consumption, people needed to resist the urge of indulging with the candy that was right in front of them while they responded to filler questions. When persisting at an ad evaluation task that could be quit anytime, people needed to resist the urge to disengage from a tedious task.

The results of the first study are inconsistent with a perspective based solely on goal activation. For example, if the candy in experiment 1A activated an indulgence goal for low-self-control people, then interrupting the initial task related to this goal should have encouraged more, not less, candy consumption owing to temporal escalation. The results are also inconsistent with Muraven et al.'s (2008) deficit-based perspective. Muraven et al. (2008) predict a main effect of self-control but no influence of task completion.

The manipulation checks indicate that perceived depletion is related to an individual's self-control but not to the state of initial task completion. This finding is important because it rules out the possibility that interrupting a rewarding task for high-self-control people was in some way depleting. Manipulation checks also indicated that self-control influenced stress and anxiety but that these responses were not influenced by the state of initial task completion. This makes it unlikely that these experiences were responsible for subsequent behaviors. The analyses involving conscientiousness, impulsivity, self-esteem, and perfectionism suggest that these variables cannot account for the results.

A final concern relates to an assumption about the product evaluation task in experiment 1B. We assumed that all participants perceived the product evaluation task as work (e.g., effortful). This assumption seems to be at odds with our assumption that individual differences in self-control can influence perceptions of a task as work or fun. We contend that individual differences create perceptual tendencies but that perceptions of a second task may depend on (a) the nature of the initial task, (b) manipulations used before the second task (e.g., task completion), and (c) framing. A separate test ( $N = 102$ ) supported this assumption. Participants experienced the experiment 1B procedure with one difference—half of the participants were told the product evaluation task was fun before starting it. After participants had evaluated 10 products, the procedure was stopped, and participants were asked about their perceptions of the task as work and fun. The slope of self-control was not significant in the no-frame or the fun-frame condition for the work ( $\beta_{nf} = -.10$ ,  $p > .37$ ;  $\beta_{ff} = -.33$ ,  $p > .13$ ) or fun measure ( $\beta_{nf} = -.07$ ,  $p > .40$ ;  $\beta_{ff} = -.12$ ,  $p > .34$ ). However, both high-self-control and low-self-control participants perceived the task to be more of an obligation to work ( $\beta_{HSC} = -1.99$ ,  $p < .01$ ;  $\beta_{LSC} = -1.55$ ,  $p < .01$ ) and less of an opportunity to have fun ( $\beta_{HSC} = 2.17$ ,  $p < .01$ ;  $\beta_{LSC} = 2.27$ ,  $p < .01$ ) in the no-frame than in the fun-frame condition. The fact

that the product evaluation task was perceived as more work, and less fun, when this task was not framed than when it was framed to be fun suggests that the product-rating task was effortful for all participants.

## EXPERIMENT 2

An implicit assumption of hypothesis 1 is that low- and high-self-control people construe volitional acts differently. In experiment 1A, low-self-control people construed the candy-rating task (task 1) as an obligation to work (i.e., extrinsically motivated), whereas high-self-control people construed the candy-rating task as an opportunity to have fun (i.e., intrinsically motivated). If task construal is malleable, then it should be possible to encourage high-self-control people to behave like low-self-control people. In experiment 2, the initial candy-rating task was unframed (as in experiment 1A) or framed to be an obligation to work. Framing the initial candy-rating task as an obligation to work should encourage all participants, regardless of their level of self-control, to exhibit more regulatory failure after completing the task, as opposed to believing the task was incomplete.

### Method

*Participants and Design.* Participants were 196 undergraduate business students from the University of Florida who participated in exchange for course credit. The experiment used a three-factor design. The participant's level of self-control was a measured variable, while the framing of the initial task (none vs. work frame) and task completion (complete vs. incomplete) were manipulated between subjects.

*Procedure.* The study replicated the procedure of experiment 1A with one exception. Before performing the initial candy-rating task, the task was framed as regulatory or not. In the no-frame control condition, participants were told that the Institutional Review Board of the university recommended that they limit their consumption to one piece of candy in each part of the candy experiment. Given that this was a recommendation and not an imposition, it was thought that this framing would allow participants to construe the initial task as an obligation to work (low-self-control people) or as an opportunity to have fun (high-self-control people). This condition was identical to experiment 1A, except for the recommended consumption quantity.

In the work-frame condition, an effort was made to encourage all participants to construe the candy rating as an obligation to work. Participants were told that the Institutional Review Board of the university determined that students should be actively involved in determining how much candy they should eat. Participants were then asked to indicate the minimum number of Skittles and M&Ms they needed in order to perform the candy experiment. In choosing the minimum, participants were forced to create a regulatory standard that was lower than the amount that they

might typically eat. Note that the no-frame procedure was designed to be as similar to the work-frame procedure as possible, the primary difference was the setting of the regulatory minimum in the work-frame procedure. The remainder of the procedure, including the 20-minute filler study and the measure of self-control, was the same as that of experiment 1A. The amount of candy eaten was the dependent measure.

### Results

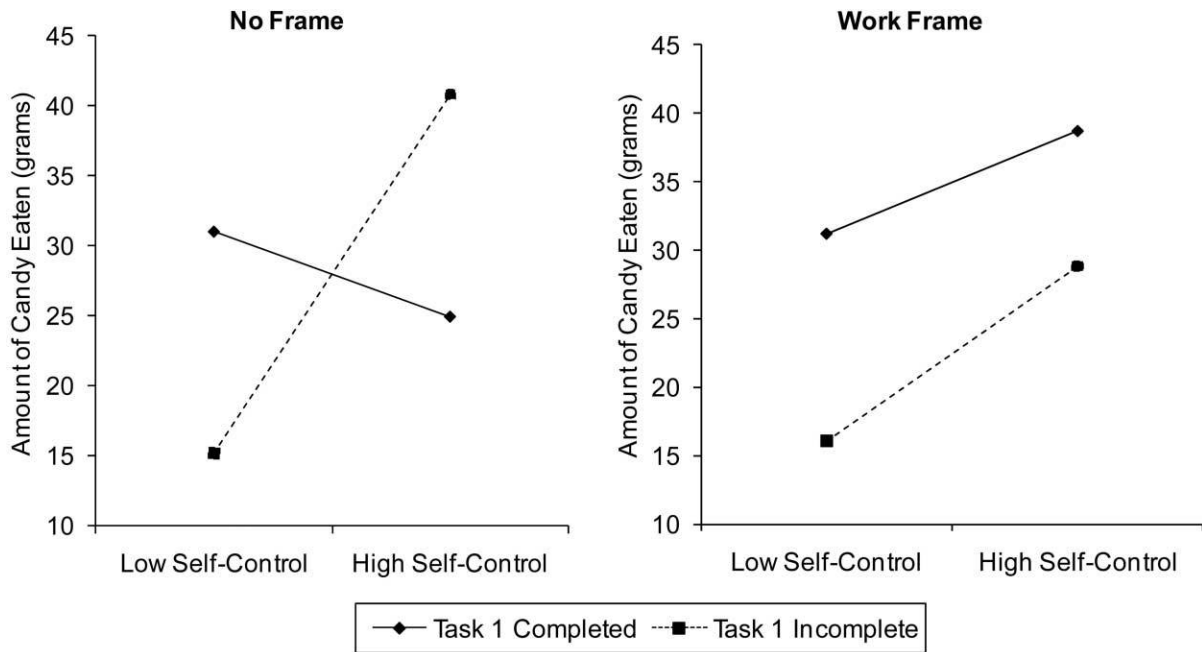
*Manipulation Check.* The manipulation check procedure was identical to experiment 1A's. An independent sample of 171 participants was used to assess whether perceptions of the obligation to work or the opportunity to have fun varied by condition. The expected task frame by self-control interaction was significant for the work measure ( $\beta = .59, p < .05$ ). The slope of self-control was significant and negative in the no-frame condition ( $\beta = -.49, p < .01$ ) but not in the work-frame condition ( $\beta = .32, p > .32$ ). Low-self-control participants did not show any difference between the no-frame ( $M = 3.4$ ) and the work-frame conditions ( $M = 3.4; \beta = -.01, p > .48$ ), while high-self-control participants perceived the task to be more of an obligation to work in the work-frame ( $M = 3.5$ ) than in the no-frame condition ( $M = 2.5; \beta = -1.04, p < .01$ ). The expected task frame by self-control interaction was also significant for the fun measure ( $\beta = -.68, p < .05$ ). The slope of self-control was significant and positive in the no-frame condition ( $\beta = .87, p < .01$ ) but not in the work-frame condition ( $\beta = .19, p > .19$ ). Low-self-control participants did not show any difference between the no-frame ( $M = 3.1$ ) and the work-frame conditions ( $M = 3.2; \beta = -.05, p > .43$ ), while high-self-control participants perceived the task to be less of an opportunity to have fun in the work-frame ( $M = 3.5$ ) than in the no-frame condition ( $M = 4.6; \beta = 1.11, p < .01$ ). All other measures mimicked the results of the experiment 1A manipulation checks.

*Minimum Standard.* Participants in the work-frame condition were asked to set a minimum standard for the number of pieces of candy they would consume. The average number of pieces for these participants was 1.59, and this did not vary as a function of self-control ( $\beta = .02, p > .77$ ).

*Analysis.* The amount of candy eaten was regressed on task frame, the individuals' self-control index, task completion, and the two-way and three-way interactions. The results are presented in figure 2. There was a significant interaction of the task frame, self-control, and the task-completion variables ( $\beta = -15.54, p < .05$ ). There was also a significant interaction between self-control and task completion ( $\beta = 47.30, p < .05$ ), but this effect was qualified by the three-way interaction. In order to clarify the nature of this interaction, we performed regressions for each task frame condition. In the no-frame condition, there was an interaction between the self-control and the task-completion



**FIGURE 2**  
RESULTS OF EXPERIMENT 2



NOTE.—Higher values represent less self-control. Low-self-control and high-self-control values are  $\pm 1$  SD from the mean.

factors ( $\beta = 16.22, p < .01$ ). At 1 SD below the mean of self-control, participants ate more in the completed than in the incomplete-task condition ( $\beta = -15.92, p < .01$ ). At 1 SD above the mean of self-control, participants ate less in the completed than in the incomplete-task condition ( $\beta = 15.91, p = .01$ ). This replicates the results of experiment 1A. In the work-frame condition, there was no interaction between the self-control and the task-completion factors ( $\beta = 2.82, p > .58$ ). As predicted, there was a simple effect of task completion ( $\beta = -13.31, p < .01$ ). Participants who perceived they had completed the initial task ate more than participants who perceived the initial task was incomplete.

*Discussion.* The results of experiment 2 show that an initial effortful behavior can be construed according to the natural tendencies of a person or be determined by contextual factors. When the context was ambiguous, low- (high-) self-control participants construed an initial candy-rating task as an obligation to work (opportunity to have fun). This resulted in low- (high-) self-control participants having less (more) self-control after completing (not completing) the candy-rating task. When the context encouraged the participant to set a minimum regulatory standard, participants became more likely to perceive the candy-rating task as an obligation to work, and task completion resulted in less self-control.

### EXPERIMENT 3

Experiment 2 showed that high-self-control people could be encouraged to behave like low-self-control people when an initial volitional behavior was framed as an obligation to work. In experiment 3, an initial volitional behavior was framed to be an opportunity to have fun. The choices in experiment 1B were left unframed or framed as a fun behavior. Framing the choices as fun should encourage all participants, regardless of their level of self-control, to exhibit more regulatory control when the initial task was perceived as complete, as opposed to incomplete.

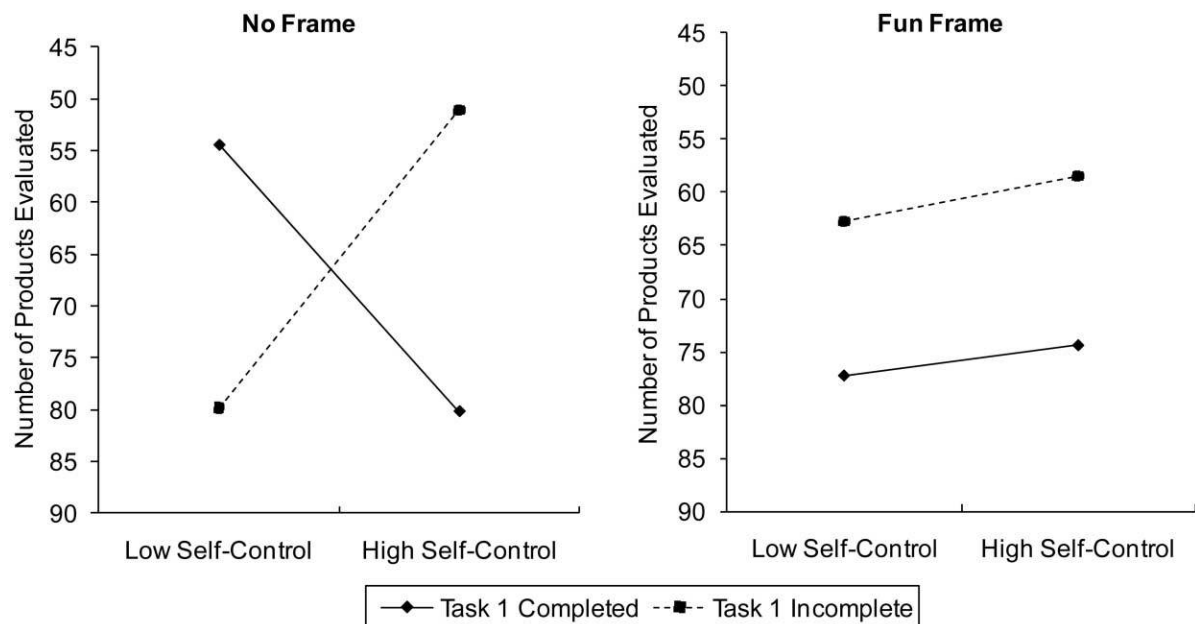
#### Method

*Participants and Design.* Participants were 251 undergraduate business students from the University of Miami who participated in exchange for course credit. The experiment used a three-factor design. The level of self-control was a measured variable, while the framing of the initial behavior (none vs. fun framing) and task-completion (complete vs. incomplete) factors were manipulated between subjects.

*Procedure.* The study replicated the procedure of experiment 1B in the no-frame condition. In the fun-frame condition, the procedure was also the same, except that one

FIGURE 3

RESULTS OF EXPERIMENT 3



NOTE.—Lower values represent less self-control. Low-self-control and high-self-control values are  $\pm 1$  SD from the mean.

sentence was added to the beginning of the choice study instructions. The sentence read: “The first study is a fun study involving hypothetical choices in several product categories.”

## Results

**Manipulation Check.** The manipulation check procedure was identical to experiment 1B’s. An independent sample of 167 participants was used to assess whether perceptions of the obligation to work or opportunity to have fun varied by condition. The expected frame by self-control interaction was significant for the work measure ( $\beta = .53, p < .05$ ). The slope of self-control was significant and negative in the no-frame condition ( $\beta = -.68, p < .01$ ) but not in the fun-frame condition ( $\beta = -.15, p > .21$ ). High-self-control participants did not show any difference between the no-frame ( $M = 3.0$ ) and the fun-frame conditions ( $M = 3.1; \beta = -.07, p > .42$ ), while low-self-control participants perceived the task to be more of an obligation to work in the no-frame ( $M = 4.3$ ) than in the fun-frame condition ( $M = 3.4; \beta = -.98, p < .01$ ). The expected frame by self-control interaction was also significant for the fun measure ( $\beta = -.51, p < .05$ ). The slope of self-control was significant and positive in the no-frame condition ( $\beta = .41, p < .01$ ) but not in the fun-frame condition ( $\beta = -.10, p > .29$ ). High-self-control participants did not show any difference between the no-frame ( $M = 3.6$ ) and the fun-frame

conditions ( $M = 3.6; \beta = -.02, p > .47$ ), while low-self-control participants perceived the task as more of an opportunity to have fun in the fun-frame ( $M = 3.8$ ) than in the no-frame condition ( $M = 2.8; \beta = 1.00, p < .01$ ). All other measures mimicked the results of the experiment 1B manipulation checks.

**Analysis.** The number of products viewed and evaluated was regressed on task frame, the individuals’ self-control index, task completion, and the two-way and three-way interactions. The results are presented in figure 3. Again, the Y-axis is set from high to low so that higher points on the graph correspond to more regulatory failure. There was a significant interaction of the task frame, self-control, and task-completion variables ( $\beta = 24.56, p < .01$ ). There was also a significant interaction between self-control and task completion ( $\beta = -25.21, p < .01$ ) and a simple effect of self-control ( $\beta = 11.90, p < .05$ ), but these effects were qualified by the three-way interaction. In order to clarify the nature of this interaction, we performed regressions for each task frame condition. In the no-frame condition, there was an interaction between the self-control and the task-completion factors ( $\beta = -25.21, p < .01$ ). At 1 SD below the mean of self-control, participants were willing to evaluate fewer products in the completed than in the incomplete-task condition ( $\beta = 25.49, p < .01$ ). At 1 SD above the mean of self-control, participants were willing to evaluate more products in the completed than in the incomplete-task con-

dition ( $\beta = -29.00, p < .01$ ). These findings replicate the results of experiment 1B. In the fun-frame condition, there was no interaction between the self-control and the task-completion factors ( $\beta = -.65, p > .89$ ). There was a simple effect of task completion ( $\beta = -18.12, p = .01$ ). Participants who perceived they had completed the initial task evaluated more products than participants who perceived the initial task was incomplete.

## Discussion

Similar to experiment 2, the results show that an initial task can be construed according to the natural tendencies of a person or be determined by contextual factors. When the context was ambiguous, low- (high-) self-control participants construed the initial choice task as an obligation to work (opportunity to have fun). This resulted in low- (high-) self-control participants having less (more) self-control after completing the choice task. When the context encouraged the participant to view the initial task as fun, completing the task resulted in more self-control.

## EXPERIMENT 4

Experiments 1B and 3 showed that perceived task completion can lead to disengagement from a mundane product-rating task when a person is low in self-control but sustained engagement in a mundane product-rating task when a person is high in self-control. The initial difficult choice task was perceived as an obligation to work for those with low self-control but as an opportunity to have fun for those with high self-control. If this is so, we should be able to alter the behavior of these two types of people by altering the difficulty of the initial choice task. If the initial choice task is made easier, it should not be as much work for the low-self-control people, and they should be more willing to sustain performance on the mundane product-rating task. In contrast, an easier initial choice task should not generate as much vitality for the high-self-control people, so they should cease performance on the mundane product rating sooner.

## Method

*Participants and Design.* Participants were 155 undergraduate business students from the University of Miami who participated in exchange for course credit. The experiment used a two-factor design. The participant's level of self-control was a measured variable, while the difficulty of the initial task (difficult vs. easy) was manipulated between subjects.

*Procedure.* The procedure involved the unframed, completed-task conditions of experiments 1B and 3. In the difficult initial task condition, participants made the same four choices involving difficult trade-offs as they made in the previous experiments. In the easy task condition, participants made four choices in the same product categories, except that the choices did not involve difficult trade-offs.

In the easy choice condition, the compromise choice was made more attractive on each of the attributes (see table A1).

## Results

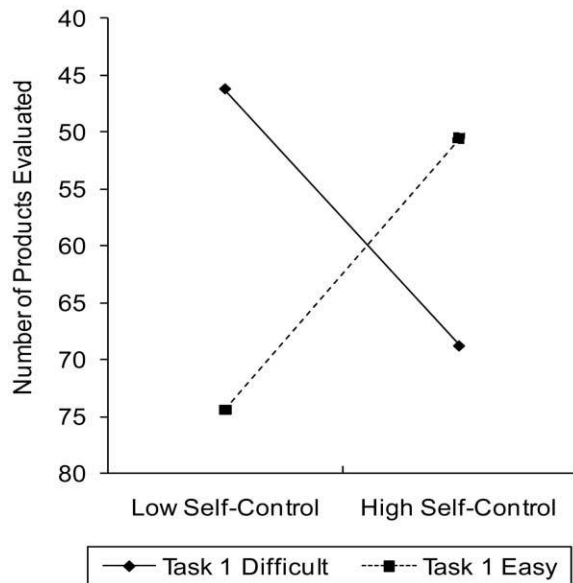
*Manipulation Check.* The manipulation check procedure was identical to that used in experiment 1B. An independent sample of 145 participants was used to assess whether perceptions of the obligation to work or opportunity to have fun varied by condition. The task difficulty by self-control interaction was significant for the work measure ( $\beta = .92, p < .01$ ). The slope of self-control was significant and negative in the difficult condition ( $\beta = -.45, p < .01$ ) but positive in the easy condition ( $\beta = .47, p < .01$ ). High-self-control participants perceived the task to be more of an obligation to work in the easy condition ( $M_{LSC} = 4.0, M_{HSC} = 4.8; \beta = -.96, p < .01$ ), while low-self-control participants perceived the task to be more of an obligation to work in the difficult condition ( $M_{LSC} = 4.7, M_{HSC} = 3.9; \beta = .77, p < .01$ ). The expected difficulty by self-control interaction was also significant for the fun measure ( $\beta = -.89, p < .01$ ). The slope of self-control was significant and positive in the difficult condition ( $\beta = .33, p < .01$ ) but negative in the easy condition ( $\beta = -.56, p < .05$ ). High-self-control participants perceived the task to be more of an opportunity to have fun in the difficult condition ( $M_{LSC} = 3.1, M_{HSC} = 3.7; \beta = .96, p < .01$ ), while low-self-control participants perceived the task to be more of an opportunity to have fun in the easy condition ( $M_{LSC} = 3.8, M_{HSC} = 2.8; \beta = -.71, p < .05$ ). All other measures mimicked the results of the experiment 1B manipulation checks. Participants from the actual experiment perceived the study to be significantly easier in the easy task condition ( $M = 4.22$ ) than in the difficult task condition ( $M = 5.05; t(154) = 5.95, p = .01$ ).

*Analysis.* The number of products viewed was regressed on the individuals' self-control index and the difficulty of the initial task. The results are presented in figure 4. There was a significant interaction between the self-control and task difficulty variables ( $\beta = -25.48, p < .01$ ). There was also a simple effect of self-control ( $\beta = 12.37, p < .01$ ), but this effect was qualified by the two-way interaction. At 1 SD below the mean of self-control, participants elected to evaluate more products in the easy than in the difficult task condition ( $\beta = 28.29, p < .01$ ). At 1 SD above the mean of self-control, participants elected to evaluate more products in the difficult than in the easy task condition ( $\beta = -18.10, p < .01$ ).

## Discussion

The results of experiment 4 show that it is the performance of the volitional behavior, not simply its construal, that depletes or energizes. For low-self-control participants, making the initial task easier resulted in less perceived work, less depletion, and more regulatory control. As a conse-

FIGURE 4  
RESULTS OF EXPERIMENT 4



NOTE.—Lower values represent less self-control. Low-self-control and high-self-control values are  $\pm 1$  SD from the mean.

quence, low-self-control participants were better able to sustain performance on the product-rating task after performing an easy as opposed to a hard task. For high-self-control participants, making the initial task easier resulted in less perceived fun, less vitality, and less regulatory control. As a consequence, high-self-control participants were less able to sustain performance on the product-rating task after performing an easy as opposed to a hard task.

## EXPERIMENT 5

We propose that high-self-control people are more likely to be intrinsically motivated, while low-self-control people are more likely to be extrinsically motivated, in many of their volitional behaviors. In experiment 5, we manipulated the locus of the reward in order to influence the motivation for the initial volitional behavior. By providing people with an extrinsic reward for performing the initial task, we sought to shift the motivation from intrinsic to extrinsic. We predicted that this shift to an extrinsic reward would reduce the vitality that accrues from performing the behavior (Deci, Koestner, and Ryan 1999). High-self-control people should behave like low-self-control people when the reward is extrinsic.

## Method

**Participants and Design.** Participants were 304 undergraduate business students from the University of Miami who participated in exchange for course credit. The experiment used a three-factor design. The participant's level of self-control was a measured variable, while the task-completion (complete vs. incomplete) and feedback (none vs. extrinsic reward) factors were manipulated between subjects.

**Procedure.** In the no-feedback condition, the procedure was identical to the procedure of experiment 1B. In the extrinsic feedback condition, the procedure was similar except that participants received additional feedback after having made the first two and the second two choices of the initial task. In the completed-task condition, participants were told, "Thanks for completing the first choice study. Click on the continue button to start the next choice study. Again, make sure you pay attention to the attribute values of each product." Thanking participants repeatedly would encourage them to perceive the behavior as being motivated by an external source as opposed to being intrinsically motivated. In the incomplete-task condition, participants were told, "Thanks for making these choices. Click on the continue button in order to make more choices. Again, make sure you pay attention to the attribute values of each product." Similar feedback was repeated after participants had made their fourth choice.

## Results

**Manipulation Check.** The manipulation check procedure was identical to that of experiment 1B. A sample of 139 participants was used to assess whether perceptions of the obligation to work or opportunity to have fun varied by condition. The expected feedback by self-control interaction was significant for the work measure ( $\beta = 1.17, p < .01$ ). The slope of self-control was significant and negative in the no-feedback condition ( $\beta = -.91, p = .01$ ) but not in the extrinsic reward condition ( $\beta = .26, p > .05$ ). Low-self-control participants did not show any difference between the no-feedback ( $M = 5.5$ ) and the extrinsic reward conditions ( $M = 4.9; \beta = -.63, p > .05$ ), while high-self-control participants perceived the task to be more of an obligation to work in the extrinsic reward ( $M = 5.3$ ) than in the no-feedback condition ( $M = 4.0; \beta = 1.36, p < .01$ ). The expected feedback by self-control interaction was also significant for the fun measure ( $\beta = -1.30, p < .05$ ). The slope of self-control was significant and positive in the no-feedback condition ( $\beta = 1.29, p < .01$ ) but not in the extrinsic reward condition ( $\beta = -.01, p > .05$ ). Low-self-control participants did not show any difference between the no-feedback ( $M = 3.2$ ) and the extrinsic reward conditions ( $M = 3.0; \beta = .43, p > .05$ ), while high-self-control participants perceived the task to be less of an opportunity to have fun in the extrinsic reward ( $M = 2.9$ ) than in the no-feedback condition ( $M = 3.6; \beta = -1.79, p < .01$ ). All

other measures mimicked the results of the experiment 1B manipulation checks.

*Analysis.* The number of products viewed and evaluated was regressed on feedback, the individuals' self-control index, task completion, and the two-way and three-way interactions. The results are presented in figure 5. There was a significant interaction of the feedback, self-control, and task-completion variables ( $\beta = 24.15, p < .01$ ). There was also a significant interaction between self-control and task completion ( $\beta = -46.76, p < .05$ ), but this effect was qualified by the three-way interaction. In order to clarify the nature of this interaction, we performed regressions for each feedback condition. In the no-feedback condition, there was an interaction between the self-control and the task-completion factors ( $\beta = -22.61, p < .01$ ). At 1 SD below the mean of self-control, participants were willing to evaluate fewer products in the completed than in the incomplete-task condition ( $\beta = 15.03, p < .01$ ). At 1 SD above the mean of self-control, participants were willing to evaluate more products in the completed than in the incomplete-task condition ( $\beta = -21.73, p < .01$ ). These results replicate experiment 1B. In the extrinsic reward condition, there was no interaction between the self-control and the task-completion factors ( $\beta = 1.53, p > .84$ ) but a simple effect of task completion ( $\beta = 13.26, p < .05$ ). Participants who perceived they had completed the initial task evaluated fewer

products than participants who perceived the initial task was incomplete.

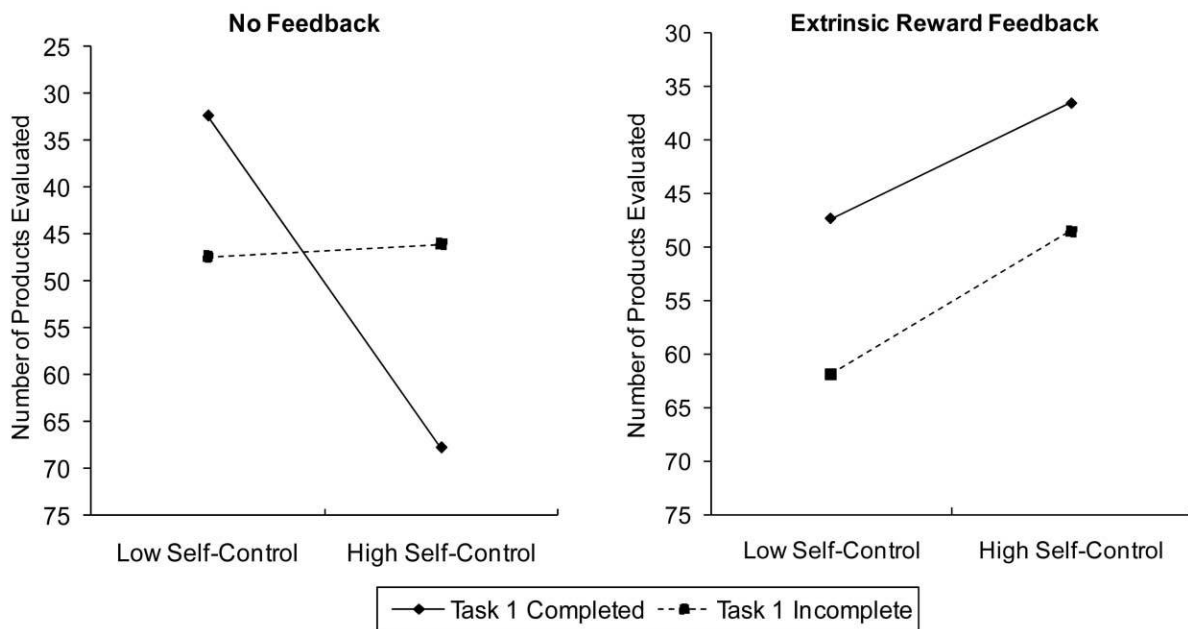
Discussion

Similar to experiments 2 and 3, the results show that tasks can be intrinsically or extrinsically motivated. Yet, unlike the earlier studies, task motivation was manipulated by providing feedback during the performance of the task. Providing positive feedback during the performance of an initial choice task encouraged high-self-control participants to perceive the task as work instead of fun. The shift in perception, and the locus of motivation, made high-self-control people behave like low-self-control people. These results are consistent with demonstrations that show extrinsic rewards can reduce intrinsic, and increase extrinsic, motivation (Deci et al. 1999).

GENERAL DISCUSSION

Low-self-control and high-self-control people often construe their worlds differently. Low-self-control people perceive many behaviors (e.g., making difficult product choices, eating in moderate quantities) as taxing and difficult (i.e., depleting). Upon completion of a taxing behavior, a low-self-control person is more likely to exhibit regulatory failure. High-self-control people perceive many of the same behav-

FIGURE 5  
RESULTS OF EXPERIMENT 5



NOTE.—Lower values represent less self-control. Low-self-control and high-self-control values are  $\pm 1$  SD from the mean.

iors as challenging and rewarding (i.e., generate vitality). Upon completion of a challenging behavior, the high-self-control person is likely to sustain regulatory control. Yet, when a low- (high-) self-control person lacks the opportunity to complete the behavior, depletion (vitality) does not affect subsequent behavior. Evidence for these processes comes from the behavior of low- and high-self-control people (experiment 1). In addition, framing behaviors as work (experiment 2) and shifting the locus of reward to be extrinsic (experiment 5) encourages high-self-control people to exhibit less self-control, while framing behaviors as fun encourages low-self-control people to exhibit more self-control (experiment 3).

The results suggest that existing assumptions about regulation, and the processes responsible for it, may have to be amended. First, it appears that an identical behavior can result in depletion and subsequent regulatory failure or in vitality and subsequent regulatory success. Whether a volitional behavior results in depletion or vitality depends on the motivation (e.g., extrinsic, intrinsic) for performing the behavior. Second, the state of a behavior (e.g., incomplete, complete), in conjunction with the amount of effort required to complete a behavior, determines the amount of depletion or vitality a consumer experiences. It is as if depletion and vitality cannot be “banked” until the behavior is recorded as complete. Third, the motivation for a behavior and the state of a behavior are malleable. Motivation for a volitional behavior is established before starting a behavior but can be updated or amended during the course of executing the behavior (e.g., experiment 4). Likewise, the standards for completion of a task can be established after the performance of a task. The implication is that the regulatory system is highly malleable.

It is interesting to speculate on why a regulatory system might be sensitive to subjective cognitive events, like the source of motivation or the level of task completion. We believe this malleability is part of a basic behavior regulation and management system that responds to the surrounding environment (Laran, Dalton, and Andrade 2011; Laran, Janiszewski, and Cunha 2008). To appreciate this claim, start with the observation that people can act in their own self-interest (intrinsic motivation) or in the interest of others (extrinsic motivation). If people acted only in their self-interest, or only in the interest of others, it would be difficult for the person or species to survive. There must be a balance between these two types of behaviors. Thus, the motivational system should be designed to encourage self-relevant behavior (i.e., provide vitality) but at the same time set limits on the intrinsic rewards realized from these behaviors (i.e., limit vitality maximization). It may be that people have the ability to reframe behaviors from complete to incomplete, or to locate sources of extrinsic motivation, so as to manage vitality maximization. Of course, it is also useful to be able

to reframe incomplete behaviors as complete, or to ignore sources of external motivation, so as to generate vitality when needed. Thus, it may be that a malleable regulatory system allows an individual to be personally and socially valuable.

The research also has some practical implications. Consider treatment programs designed to regulate eating, drinking, gambling, and so on. Some of these treatment programs emphasize strictly regimented routines. For example, many diet plans make food consumption more like work and less like fun and, hence, increase the depletion experienced when executing the eating behaviors. In effect, framing the dieting process as work increases the chance of regulatory failure. This might explain why the average dieter is 11 pounds heavier than their prediet weight 5 years after successful weight loss (Mann et al. 2007). Some dieting programs may be teaching routines that result in depletion. Dieting programs, like all regulation programs, might be more successful if they were to emphasize the “fun” of regulatory behavior. Likewise, framing a dieting program as ongoing (e.g., maintain your weight) as opposed to complete (e.g., reach a target weight of X) should be more effective.

The findings raise important public policy questions. Regulation should be more successful when a consumer is encouraged to adopt an intrinsic, as opposed to extrinsic, motivation for the regulatory behavior. Deci and Ryan (2000) argue that a felt sense of autonomy (i.e., that the regulatory act is volitional and consistent with the person’s sense of self) promotes regulation because it promotes intrinsic motivation. An emphasis on autonomy leads to long-term weight loss (Williams et al. 1996), diabetes control (Williams et al. 2004), and smoking cessation (Williams et al. 2002). The public policy challenge is to find ways to encourage people to feel autonomous in their self-control efforts. Instead of emphasizing regulatory behavior motivated by social norms (e.g., look good), significant others (e.g., do it for your family), or social responsibility (e.g., don’t hurt others), public policy should emphasize regulatory behavior motivated by personal reasons (e.g., feel energetic, happy, successful).

In summary, there are a number of ways to think about how consumers fail or succeed at their self-control pursuits. Although the depletion metaphor is a useful framework for anticipating the factors that encourage and discourage regulatory failure, it is limiting in that it fails to recognize that perceptual experience is malleable. Behaviors that are depleting for some may be inherently rewarding to others. Moreover, behaviors that are depleting on some occasions may create vitality on other occasions. The challenge is to learn how to frame behaviors, or teach consumers how to frame behaviors, so as to create a more effective balance between depletion and vitality. Framing behaviors as work or as fun is one mechanism for achieving this balance.

APPENDIX

TABLE A1

CHOICE SETS

Categories/attributes	Option A	Option B	Option C
Difficult trade-off choices:			
One-bedroom apartment:			
Commute	3 blocks to campus	15 min. to campus	30 min. to campus
Rent/month	\$800	\$625	\$450
Rechargeable batteries:			
Energy efficiency	10 hours/charge	14 hours/charge	18 hours/charge
Battery life	2,000 recharges	1,500 recharges	1,000 recharges
Automobile:			
Ride quality rating	83/100	73/100	63/100
Gas efficiency	24 miles/gallon	32 miles/gallon	40 miles/gallon
USB memory sticks:			
Memory capacity	1 MB	2 MB	4 MB
Price	\$40.95	\$59.95	\$97.95
Easy choices:			
One-bedroom apartment:			
Commute	3 blocks to campus	6 min. to campus	30 min. to campus
Rent/month	\$800	\$575	\$450
Rechargeable batteries:			
Energy efficiency	10 hours/charge	16 hours/charge	18 hours/charge
Battery life	2,000 recharges	1,800 recharges	1,000 recharges
Automobile:			
Ride quality rating	83/100	80/100	63/100
Gas efficiency	24 miles/gallon	35 miles/gallon	40 miles/gallon
USB memory sticks:			
Memory capacity	1 MB	3 MB	4 MB
Price	\$40.95	\$49.95	\$97.95

REFERENCES

Agrawal, Nidhi and Echo Wen Wan (2009), "Regulating Risk or Risking Regulation? Construal Levels and Depletion Effects in the Processing of Health Messages," *Journal of Consumer Research*, 36 (October), 448–62.

Aiken, Leona S. and Stephen G. West (1991), *Multiple Regression: Testing and Interpreting Interactions*, Newbury Park, CA: Sage.

Babin, Barry J., William R. Darden, and Mitch Griffin (1994), "Work and/or Fun: Measuring Hedonic and Utilitarian Shopping Value," *Journal of Consumer Research*, 20 (March), 644–56.

Baumeister, Roy F., Ellen Bratslavsky, Mark Muraven, and Dianne M. Tice (1998), "Ego Depletion: Is the Active Self a Limited Resource?" *Journal of Personality and Social Psychology*, 74 (May), 1252–65.

Brown, Kirk W. and Richard M. Ryan (2004), "Fostering Healthy Self-Regulation from Within and Without: A Self-Determination Theory Perspective," in *Positive Psychology in Practice*, ed. P. Alex Linley and Stephen Joseph, Hoboken, NJ: Wiley, 105–24.

Carnes, Patrick J. (1992), *Don't Call It Love: Recovery from Sexual Addiction*, New York, Bantam.

Csikszentmihalyi, M. (1975), *Beyond Boredom and Anxiety: The Experience of Play in Work and Games*, San Francisco: Jossey-Bass.

DeCharms, Richard (1968), *Personal Causation: The Internal Affective Determinants of Behavior*, New York: Academic Press.

Deci, Edward L., Richard Koestner, and Richard M. Ryan (1999), "A Meta-analytic Review of Experiments Examining the Effects of Extrinsic Rewards in Intrinsic Motivation," *Psychological Bulletin*, 125 (November), 627–68.

Deci, Edward L. and Richard M. Ryan (1985), *Intrinsic Motivation and Self-Determination in Human Behavior*, New York: Plenum.

——— (2000), "The 'What' and 'Why' of Goal Pursuits: Human Needs and the Self-Determination of Behavior," *Psychological Inquiry*, 11 (4), 227–68.

Dewitte, Siegfried, Sabrina Bruyneel, and Kelly Geyskens (2009), "Self-Regulating Enhances Self-Regulation in Subsequent Consumer Decisions Involving Similar Response Conflicts," *Journal of Consumer Research*, 36 (October), 394–405.

Fitzsimons, Gavan (2008), "Death to Dichotomizing," *Journal of Consumer Research*, 35 (June), 5–8.

Godfrey, Jodi R. (2004), "Toward Optimal Health: The Experts Discuss Eating Disorders," *Journal of Women's Health*, 13 (July–August), 662–67.

Griffin-Shelley, Eric, Kenneth R. Sandler, and Cynthia Lees (1992), "Multiple Addictions among Dually Diagnosed Adolescents," *Journal of Adolescent Chemical Dependency*, 2 (2), 35–44.

Grolnick, Wendy S. and Richard M. Ryan (1987), "Autonomy in Children's Learning: An Experimental and Individual Difference Investigation," *Journal of Personality and Social Psychology*, 52 (May), 890–98.

Hagedorn, W. Bryce and Gerald A. Juhnke (2005), "Treating the Sexually Addicted Client: Establishing a Need for Increased Counselor Awareness," *Journal of Addictions and Offender Counseling*, 25 (April), 66–86.

Hull, Clark (1943), *Principles of Behavior*, New York: Appleton-Century-Crofts.

Kasser, Tim and Richard M. Ryan (1996), "Further Examining the

- American Dream: Differential Correlates of Intrinsic and Extrinsic Goals," *Personality and Social Psychology Bulletin*, 22 (March), 280–87.
- Kivetz, Ran and Itamar Simonson (2002), "Self-Control for the Righteous: Toward a Theory of Precommitment to Indulgence," *Journal of Consumer Research*, 29 (September), 199–217.
- Laran, Juliano (2010a), "Choosing Your Future: Temporal Distance and the Balance between Self-Control and Indulgence," *Journal of Consumer Research*, 36 (April), 1002–15.
- (2010b), "Goal Management in Sequential Choices: Consumer Choices for Others Are More Indulgent than Personal Choices," *Journal of Consumer Research*, 37 (August), 304–14.
- (2010c), "The Influence of Information Processing Goal Pursuit on Post-decision Affect and Behavioral Intentions," *Journal of Personality and Social Psychology*, 98 (January), 16–28.
- Laran, Juliano, Amy Dalton, and Eduardo Andrade (2011), "The Curious Case of Behavioral Backlash: Why Brands Produce Priming Effects and Slogans Produce Reverse Priming Effects," *Journal of Consumer Research*, forthcoming.
- Laran, Juliano and Chris Janiszewski (2009), "Behavioral Consistency and Inconsistency in the Resolution of Goal Conflict," *Journal of Consumer Research*, 35 (April), 967–84.
- Laran, Juliano, Chris Janiszewski, and Marcus Cunha Jr. (2008), "Context-Dependent Effects of Goal Primes," *Journal of Consumer Research*, 35 (December), 653–67.
- Lejoyeux, Michel, Jean Adès, Valérie Tassin, and Jacquelyn Solomon (1996), "American Phenomenology and Psychopathology of Uncontrolled Buying," *Journal of Psychiatry*, 153 (December), 1524–29.
- Mann, Traci, A. Janet Tomiyama, Erika Westling, Ann-Marie Lew, Barbra Samuels, and Jason Chatman (2007), "Diets Are Not the Answer," *American Psychologist*, 62 (April), 220–33.
- Mukhopadhyay, Anirban, Jaideep Sengupta, and Suresh Ramanathan (2008), "Recalling Past Temptations: An Information-Processing Perspective on the Dynamics of Self-Control," *Journal of Consumer Research*, 35 (December), 586–99.
- Muraven, Mark and Roy F. Baumeister (2000), "Self-Regulation and Depletion of Limited Resources: Does Self-Control Resemble a Muscle?" *Psychological Bulletin*, 126 (March), 247–59.
- Muraven, Mark, R. Lorraine Collins, Elizabeth T. Morsheimer, Saul Shiffman, and Jean A. Paty (2005), "The Morning After: Limit Violations and the Self-Regulation of Alcohol Consumption," *Psychology of Addictive Behaviors*, 19 (September), 253–62.
- Muraven, Mark, Marylène Gagné, and Heather Rosman (2008), "Helpful Self-Control: Autonomy Support, Vitality, and Depletion," *Journal of Experimental Social Psychology*, 44 (May), 573–85.
- Muraven, Mark, Dianne M. Tice, and Roy F. Baumeister (1998), "Self-Control as a Limited Resource: Regulatory Depletion Patterns," *Journal of Personality and Social Psychology*, 74 (March), 774–89.
- Oaten, Megan and Ken Cheng (2006), "Improved Self-Control: The Benefits of a Regular Program of Academic Study," *Basic and Applied Social Psychology*, 28 (March), 1–16.
- O'Connell, Kathleen A., Joseph E. Schwartz, and Saul Shiffman (2008), "Do Resisted Temptations during Smoking Cessation Deplete or Augment Self-Control Resources?" *Psychology of Addictive Behaviors*, 22 (December), 486–95.
- Pocheptsova, Anastasiya, On Amir, Ravi Dhar, and Roy F. Baumeister (2009), "Deciding without Resources: Resource Depletion and Choice in Context," *Journal of Marketing Research*, 46 (June), 344–55.
- Ramanathan, Suresh and Geeta Menon (2006), "Time-Varying Effects of Chronic Hedonic Goals on Impulsive Behavior," *Journal of Marketing Research*, 43 (November), 628–41.
- Ramanathan, Suresh and Patti Williams (2007), "Immediate and Delayed Emotional Consequences of Indulgence: The Moderating Influence of Personality Type on Mixed Emotions," *Journal of Consumer Research*, 34 (August), 212–23.
- Rook, Dennis W. (1987), "The Buying Impulse," *Journal of Consumer Research*, 14 (September), 189–99.
- Ryan, Richard M. and Edward L. Deci (2008), "From Ego Depletion to Vitality: Theory and Findings Concerning the Facilitation of Energy Available to the Self," *Social and Personality Psychology Compass*, 2 (March), 702–17.
- Schmeichel, Brandon J., Kathleen D. Vohs, and Roy F. Baumeister (2003), "Intellectual Performance and Ego Depletion: Role of the Self in Logical Reasoning and Other Information Processing," *Journal of Personality and Social Psychology*, 85 (July), 33–46.
- Tangney, June P., Roy F. Baumeister, and Angie Luzio Boone (2004), "High Self-Control Predicts Good Adjustment, Less Pathology, Better Grades, and Interpersonal Success," *Journal of Personality*, 72 (April), 271–322.
- Tice, Dianne M., Roy F. Baumeister, Dikla Shmueli, and Mark Muraven (2007), "Restoring the Self: Positive Affect Helps Improve Self-Regulation following Ego Depletion," *Journal of Experimental Social Psychology*, 43 (May), 379–84.
- U.S. Department of Health and Human Services (2002), "2001 National Household Survey on Drug Abuse," Vol. 1, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services, <http://www.oas.samhsa.gov/NHSDA/2k1NHSDA/vol1/toc.htm>.
- Van den Bergh, Bram, Siegfried DeWitte, and Luk Warlop (2008), "Bikinis Instigate Generalized Impatience in Intertemporal Choice," *Journal of Consumer Research*, 35 (June), 85–97.
- Vohs, Kathleen D. and Ronald J. Faber (2007), "Spent Resources: Self-Regulatory Resource Availability Affects Impulse Buying," *Journal of Consumer Research*, 33 (March), 537–47.
- Vohs, Kathleen D. and Todd F. Heatherton (2000), "Self-Regulatory Failure: A Resource-Depletion Approach," *Psychological Science*, 11 (May), 249–54.
- Wan, Echo Wen, Derek D. Rucker, Zakary L. Tormala, and Joshua J. Clarkson (2010), "The Effect of Regulatory Depletion on Attitude Certainty," *Journal of Marketing Research*, 47 (June), 531–41.
- Wang, Jing, Nathan Novemsky, Ravi Dhar, and Roy F. Baumeister (2010), "Trade-Offs and Depletion in Choice," *Journal of Marketing Research*, 47 (October), forthcoming.
- Williams, Geoffrey C., Marylène Gagné, Richard M. Ryan, and Edward L. Deci (2002), "Facilitating Autonomous Motivation for Smoking Cessation," *Health Psychology*, 21 (January), 40–50.
- Williams, Geoffrey C., Virginia M. Grow, Zachary R. Freedman, Richard M. Ryan, and Edward L. Deci (1996), "Motivational Predictors of Weight Loss and Weight-Loss Maintenance," *Journal of Personality and Social Psychology*, 70 (January), 115–26.
- Williams, Geoffrey C., Holly A. McGregor, Allan Zeldman, Zachary R. Freedman, and Edward L. Deci (2004), "Testing a



- Self-Determination Theory Process Model for Promoting Glycemic Control through Diabetes Self-Management,” *Health Psychology*, 23 (January), 58–66.
- Williams, Geoffrey C., Christopher P. Niemiec, Heather Patrick, Richard M. Ryan, and Edward L. Deci (2009), “The Importance of Supporting Autonomy and Perceived Competence in Facilitating Long-Term Tobacco Abstinence,” *Annals of Behavioral Medicine*, 37 (June), 315–24.
- Williams, Geoffrey C., Gail C. Rodin, Richard M. Ryan, Wendy S. Grolnick, and Edward L. Deci (1998), “Autonomous Regulation and Long-Term Medication Adherence in Adult Outpatients,” *Health Psychology*, 17 (May), 269–76.