

**EFFECTS OF THE PRE-DECISION STAGE OF DECISION MAKING ON THE
SELF-REGULATION OF BEHAVIOR**

by

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**EFFECTS OF THE PRE-DECISION STAGE OF DECISION MAKING ON
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University of Pittsburgh, 2006

My dissertation consists of three essays that examine the effects of processes that take place in the pre-decision stage of decision-making on subsequent self-regulation. In my first essay I examine a new construct dealing with individuals' tendency to elaborate on potential future outcomes and develop a scale to measure it. Elaboration on potential outcomes captures the degree to which individuals generate positive and negative consequences of their behaviors, as well as the degree to which they evaluate the likelihood and importance of these consequences. I first develop the Elaboration on Potential Outcomes (EPO) scale and establish its factor structure, reliability and validity. I then investigate its relationships with conceptually related yet distinct consumer traits. Third, I examine its association with various consumer behaviors such as exercise of self-control, procrastination behaviors, compulsive buying, credit card debt, retirement investing, healthy lifestyle, and obesity. Finally, I show that peoples' tendency to think about potential outcomes predicts the type of information processing they engage in when making an important consumer decision, as well as the choices they make.

In my second essay I examine consumers' tendency to elaborate in potential outcomes in the context of investment behavior. In three studies I show that investors with a stronger chronic tendency to engage in pre-decision outcome elaboration are less likely to be affected by different types of descriptive variance effects, which emerge when individuals make different decisions as a function of how information is presented to them. Furthermore, I find that encouraging pre-decision elaboration on the pros and cons of investing helps investors who tend not to engage in such elaboration to become less influenced by peripheral cues such as information framing and presentation mode.

Finally, in my third essay I examine a different pre-decision process – goal activation at different levels of abstraction. The main question I look at is whether activating high- vs. low-level goals by asking consumers to consider why they should achieve a goal rather than how they can achieve it might differentially affect their pursuit of this goal. In two studies I examine the interactive effects of decisional status (pre- or post-decisional) and goal hierarchy (high- vs. low-level goal activation) on several self-regulatory domains: goal commitment, anticipated effortful goal pursuit, and choice.

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PREFACE

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1.0 SECTION I

INTRODUCTION

A large amount of recent research has examined the important questions of why and how people fail in their self-regulation efforts when they possess the knowledge, skill and opportunity that are required to control their thoughts, emotions, and behaviors (e.g., see Baumeister and Heatherton 1996). The importance for studying self-regulation is widely recognized, as it has implications for economics, psychology, political science, education, consumer research (Fujita et al. 2006). Past research has examined different conceptualizations of self-regulation, and has proposed various factors that might increase or impair its effectiveness. Some researchers have proposed that exerting self-control requires one to inhibit automatic reactions, and monitor their actions consciously (Baumeister and Heatherton 1996; Baumeister, Heatherton, and Tice 1994). According to this model any factor that depletes one's conscious resources would increase self-control failures. Others have suggested that self-control requires one to make decisions and to act in accordance with long-term rather than short-term outcomes (Thaler 1991), and factors that limit attention to the here and now are likely to hamper self-control effectiveness. Another conceptualization has suggested that actions can be instigated by either a hot system or a cool system (Loewenstein 1996; Metcalfe and Mischel 1999). The hot system is composed of affective mental representations, and when activated leads to impulsive responses. The cool system is composed of emotionally neutral cognitions that guide behavior in a thoughtful manner. Self-control from this perspective involves differential activation of the cool system

over the hot system, and factors that enhance the activation of the hot system will hamper self-control. Recent research has also suggested that effective self-control requires people to make decisions and act in accordance with global, high-level construals of a situation, rather than local low-level construals (Fujita et al. 2006).

In my dissertation I propose a new conceptualization of self-regulation, and examine how consumers' self-regulation efforts are affected by what happens before they make a decision. I argue that an important pre-decision process, elaborating on the potential outcomes of a decision or action, lies at the heart of self-regulation and is a major ingredient of its effectiveness.

Self-regulatory processes are evident in all aspects of people's behavior, and are exerted in any effort by people to alter their responses. Self-regulation refers to the process by which people initiate, adjust, interrupt, terminate, or otherwise alter actions to promote attainment of personal goals, plans, or standards (e.g., Carver and Scheier 1998). The process of self-regulation involves several important components – (1) having clear standards of how things should be, (2) comparing one's actual state to a desired state indicated by the standards and (3) overriding responses and bringing about a desired change in case the current state falls short of the standards (Carver and Scheier 1998). These fundamental processes are very important for understanding self-regulation, but past literature has not devoted a great deal of attention to factors that determine their success.

Various constructs have been proposed to explain self-regulation and its failure, including self-efficacy (Bandura 1997), feedback loops (Carver and Scheier 1981; 1998), time inconsistent preferences (Hoch and Loewenstein 1991), ego depletion (e.g., Baumeister et al. 1998), conscientiousness (Bem and Allen 1974), self-esteem (Baumeister, Heatherton and Tice 1993), and delay of gratification (Mischel, Shoda and Peake 1988). Although these fundamental

processes are very important for understanding self-regulation, some determinants of self-regulation have received less attention. In my dissertation I examine how processes that occur in the pre-decision stage can affect consumer self-regulation. More specifically, I look at how peoples' tendency to elaborate on potential future outcomes before they make a decision, and how goal activation at different levels of abstraction can affect self-regulation.

My work builds on the action phases model that partitions self-regulation into four distinct action phases: (1) deliberating whether to take action; (2) planning action implementation; (3) taking an action; and (4) evaluating the action (e.g., Gollwitzer 1990; Heckhausen 1991). The action phases model suggests that successful goal pursuit means solving the four consecutive tasks of deliberating the desirability and feasibility of wishes and desires and turning them into goals, getting started with the goal-directed behavior, bringing the initiated goal action to a successful end, and determining whether the initial goal has indeed been achieved (Heckhausen and Gollwitzer 1987; Gollwitzer 1990). In my work I focus on the first stage in the model, deliberation on wishes and goal setting, and examine the effects of processes that take place in this stage on effective self-regulation in the later stages of the model.

All three dissertation essays take a temporal, horizontal view of goal pursuit, and examine goal pursuit and self-regulation as part of a multi-stage process where processes that occur in earlier stages affect those in later ones. Essays 1 and 2 examine the effects of an important pre-decision process –outcome elaboration – on subsequent self-regulation, information processing, and susceptibility to decision biases. Furthermore, essay 3 combines this horizontal view with a vertical, hierarchical view of goal pursuit, and looks at how different decision-making stages interact with different levels of goal abstraction to affect several domains of self-regulation – goal commitment, goal pursuit, and choice.

My first essay examines a new construct dealing with individuals' tendency to elaborate on potential future outcomes, and develops the Elaboration on Potential Outcomes (EPO) scale as a measure of this construct. Elaboration on potential outcomes captures the degree to which individuals both generate positive and/or negative potential consequences of their behavior and evaluate the likelihood and importance of these consequences.

One of the most dominant models of self-regulation is the feedback-loop model developed by Carver and Scheier (1981, 1998). Feedback-loop analysis is a central development in understanding the process of self-regulation, and it is important to build on and develop it. One important issue needing further examination is the process of anticipation of potential desired and undesired outcomes (Baumeister et al. 1994, Carver and Scheier 1998). The concept of outcome anticipation lies at the heart of self-regulation. Elaboration on the potential outcomes of behavior not only makes people conscious of (un)desired standards and end-states, but also provides them with information as to whether an act has the potential to move them towards a desired end-state or away from an undesired one. Thus, considering future outcomes makes people more conscious of the possible effects of their behaviors and more aware of the standards to which to compare those outcomes. This information is useful in detecting a discrepancy between potential outcomes and desired standards, and is therefore likely to lead to better self-regulation and more appropriate modification of behavior. In my work I focus on one factor directing attention to future goals and implications, which has the potential to improve the capacity for self-regulation: one's tendency to elaborate on potential outcomes.

In five studies I examine how outcome elaboration relates to various consumer traits such as impulsiveness, risk aversion, need for cognition, optimism, regulatory focus, and consumer behaviors such as the exercise of self-control, procrastination, compulsive buying, credit card

debt, retirement savings, and healthy lifestyle. I show that consumers' tendency to transcend the immediate situation and elaborate on the potential outcomes when deciding how to behave is an important determinant of self-regulation. Building on past self-regulation research, I argue that EPO is essential for behavior regulation and exertion of effort in one's goals pursuit. I show that people who are more inclined to consider potential consequences are more likely to engage in self-regulation in their pursuit of a desired result. Furthermore, I show that encouraging pre-decision elaboration on potential outcomes improves self-regulation for consumers who are not inclined to engage in this type of elaboration when deciding how to behave.

My second essay examines the effects of the pre-decisional action phase on consumers' susceptibility to decision biases. I extend findings from my first essay, and again examine the effects of consumers' tendency to elaborate on potential outcomes. More specifically, I look at how consumers' tendency to elaborate on potential outcomes might help mitigate some investment decision-making biases. Building on Gollwitzer's mindset theory (e.g., Gollwitzer 1990) I argue that elaboration on potential positive and negative outcomes in the pre-decision stage of decision-making reduces people's susceptibility to descriptive variance effects. Descriptive variance effects emerge when individuals make different decisions as a function of how information is presented to them, even though the substance of the information is unchanged. Descriptive variance is demonstrated in two major streams of research: investigations of framing effects and studies of information presentation effects (Payne, Bettman, and Johnson 1992). Effects of message framing – responding differently to distinct but objectively equivalent descriptions of the same message (e.g., 10% fat versus 90% fat-free) – and effects of message presentation – responding differently to equivalent information presented in

different modes (e.g. verbally, numerically or graphically) – have both been found to affect preferences and choices.

When processing a framed message people adopt a particular frame of reference towards the target, and do not focus on alternative frames of reference as much. Past research has argued that pre-decision deliberation creates a cognitive orientation – a “deliberative mindset” – that facilitates the task of determining which available option is most desirable while still being feasible (Gollwitzer 1990). Individuals in a deliberative mindset, who weigh the pros and cons of feasibility-related and desirability-related information and the positive and negative consequences of goal pursuit, are more receptive both to information that is externally available and to information that is stored in memory (Gollwitzer and Bayer 1999; Heckhausen and Gollwitzer 1987). Such a balanced consideration of positive and negative consequences makes alternative frames of reference more accessible thus reducing shortcomings people ordinarily exhibit when analyzing the desirability of a choice, such as falling prey to framing effects.

Building on findings from my first essay, I argue that consumers’ tendency to elaborate on potential outcomes (EPO) generally leads to more potent deliberative mindsets. As I show in my first essay, some people have a stronger tendency than others to elaborate on the potential implications of a decision and weigh its pros and cons, which makes them more likely to activate a potent deliberative mind-set in the predecisional phase and reduces their susceptibility to the effects of message framing and information presentation effects.

In a series of three studies, I find that consumers with a stronger tendency to elaborate on potential outcomes are less susceptible to different types of descriptive variance effects. Furthermore, I show that susceptibility to the effects of descriptive variance can be reduced for investors who tend not to engage in EPO by encouraging them to elaborate on the potential

positive and negative outcomes of investing before making a decision by priming a deliberative mindset. The three studies in this essay employ three types of descriptive variance manipulations - attribute framing, goal framing, and format variation - and show that consumers' tendency to consider the implications of their decisions mitigates their susceptibility to descriptive variance effects for all types of framing. Furthermore, Study 3 also examines whether priming deliberative mindsets by encouraging investors to consider the pros and cons of investing reduces the susceptibility to descriptive variance biases for investors with weaker tendency to engage in pre-decision outcome elaboration.

My third essay extends findings from the previous two essays in two important ways. First, in this essay I combine both horizontal (temporal) and vertical (hierarchical) approaches to goal pursuit by examining the combined effects of consumers' decisional status (i.e. predecisional or postdecisional) and abstraction level of goal activation (i.e. high- or low-level). Second, in this essay I examine several important self-regulatory domains that were not covered in the first two essays: goal commitment, anticipated effortful goal pursuit, and choice.

Each of the action phases discussed earlier requires its own cognitive operations (mindsets), which, once accessible due to recent usage, affect how people interpret newly encountered information (Gollwitzer 1990; Gollwitzer and Bayer 1999). The first two, *preactional* phases of the action phases model: deliberating whether to take action and planning action implementation, are associated with different mindsets - deliberative and implemental, which possess some stability over time and generalize across situations. Adopting a deliberative mindset and considering potential pros and cons of particular courses of action, is expected to subsequently highlight the abstract, high-level value of activities, and adopting an implemental mindset, that is planning how to carry out activities, is expected to highlight the concrete, low-

level procedures that comprise activities (Freitas, Gollwitzer, and Trope 2004). Therefore, I examine how these two different stages of the decision-making process influence the effectiveness of activating goals at different level of abstraction.

Existing research on goal structure and determination has postulated a hierarchical goal structure (e.g. Bagozzi and Dholakia 1999; Carver and Scheier 1998; Huffman, Ratneshwar, and Mick 2000). Some goals are broader in scope than others, and this difference in breadth is often a difference in the level of abstraction at which the goal exists (Carver and Scheier 1998). Higher-level goals versus lower-level ones, are more abstract, more inclusive, and less mutable. Vallacher and Wegner's (1987) action identification theory also suggests that actions can be represented in terms of superordinate goals that have to do with the relatively abstract "why" aspects of an action, or subordinate goals that have to do with more specific "how" details of the action. Following the goal hierarchy structures outlined above, in two studies I examine how activation of different level goals - superordinate or subordinate - will differentially aid consumer self-regulation depending on one important factor –consumers' pre- or post-decisional status. I show that activation of high-level superordinate goals will promote more effective self-regulation for consumers who are in the pre-decision stage of decision making, and are still deliberating on the pros and cons of a decision. On the other hand, low-level subordinate goals will promote more effective self-regulation for consumers who are in the post-decisional stage of decision-making and are now planning the implementation of a decision they have already made. These findings have important implications for the design, presentation, and communication of consumer products and persuasive messages that are designed to reach consumers at the different stages of their decision-making process.

Findings from the three essays of my dissertation provide important contributions to research dealing with future-oriented thinking, action phases, self-regulation, goal setting, and descriptive variance. Furthermore, these findings have numerous implications for understanding deleterious consumer behaviors in the contexts of investment decision making, weight management, and healthy nutrition.

Next, I present my first essay entitled “Expectations about the Future: The Conceptualization and Measurement of Elaboration on Potential Outcomes”. Following are the second essay: “Moderators of the Susceptibility to Descriptive Variance Effects in Investment Decision Making,” and the third one: “The Interplay of Mindsets and Goal Hierarchy in Consumer Goal Pursuit and Choice.” Finally, I conclude with a discussion of the contributions and implications of findings presented in the three essays.

2.0 SECTION II

ESSAY 1: EXPECTATIONS ABOUT THE FUTURE: THE CONCEPTUALIZATION AND MEASUREMENT OF ELABORATION ON POTENTIAL OUTCOMES

Self-regulation failure creates numerous problems for consumers unable to manage their money and time, control their weight, and limit their drinking. Being unable to regulate one's emotions, impulses, actions, and thoughts creates problems not only for individual consumers, but also for society as a whole. Given the important consequences of self-regulation, the determinants of its success or failure need to be further studied. In this essay I examine one important self-regulation determinant – elaboration on potential outcomes. I show that consumers differ in their tendencies to engage in pre-decision outcome elaboration, and that those who consider potential outcomes when deciding how to behave are more efficient in their self-regulation endeavors.

The process of self-regulation involves several important components – (1) having clear standards of how things should be, (2) comparing one's actual state to a desired state indicated by the standards and (3) overriding responses and bringing about a desired change in case the current state falls short of the standards (Carver and Scheier 1998). These fundamental processes are very important for understanding self-regulation, but past literature has not devoted a great deal of attention to factors that determine their success. In this essay I examine one such factor –

peoples' tendency to elaborate on potential future outcomes – an important determinant of self-regulation, which has not received sufficient attention in the past.

Research has demonstrated compelling differences among individuals in their self-regulatory strategies and cognitive competencies for exerting self-regulation. This work has attempted to explain these differences in terms of the mediating processes that underlie them, such as individuals' encoding strategies, expectancies, values and goals, affective reactions, and self-regulatory strategies (e.g., Mischel, Cantor, and Feldman 1996). Mischel and colleagues propose that a challenging goal for future research is to more fully understand how these mediating person-specific variables interact and guide the individual's behavior "in the long and often difficult road from willing to wishing to willpower" (Mischel et al. 1996, 351).

The construct I present here - elaboration on potential outcomes - encompasses four dimensions, each of which can be distinguished conceptually and measured separately from the others. Specifically, it captures the degree to which individuals generate potential consequences of their behaviors, the degree to which they evaluate the likelihood and importance of these consequences, the degree to which they focus on positive consequences, and the degree to which they focus on negative consequences. This research builds on the notion that there are reliable individual differences in the extent to which individuals are likely to consider the outcomes of their decisions and actions.

I present the Elaboration on Potential Outcomes (EPO) scale as a measure of this construct, and then conduct a series of studies that assess the reliability and validity of this scale. The aims of this essay are to describe the structure of EPO, to introduce an instrument for measuring the construct, and to examine its relationship with various consumer traits and behaviors. I wish to emphasize that this essay is not simply about developing a new scale. Just as

important are the substantive findings of the structure of EPO and its relationship to consumer traits and self-regulation behaviors.

The remainder of this essay unfolds as follows. I first review the theory of self-regulation and establish its relationship to consumers' elaboration on potential outcomes. I then briefly look at related theories and constructs that deal with expectations about the future, and present and discuss my conceptual model. Next I present a series of studies aimed at developing a valid and reliable scale to measure consumers' tendencies to elaborate on the potential outcomes of their behavior, and then use the scale to establish a link between elaboration on potential outcomes and consumers' self-regulation behaviors. I conclude with a general discussion and suggestions for future research.

2.1 ELABORATION ON POTENTIAL OUTCOMES AND SELF-REGULATION

Self-regulatory processes are evident in all aspects of peoples' behaviors. Self-regulation refers to the process by which people initiate, adjust, interrupt, terminate, or otherwise alter actions to promote attainment of personal goals, plans, or standards (Baumeister, Heatherton and Tice 1994; Carver and Scheier 1998). Self-regulation is a complex, multifaceted process and has been examined in multiple domains such as personality (Carver and Scheier 1981, 1998; Mischel et al.1996), motivation (Bandura 1991; Gollwitzer 1990), social and cognitive psychology (Baumeister et al. 1994; Baumeister and Heatherton 1996; Fiske and Taylor 1991; Higgins, Strauman, and Klein 1986), and consumer research (e.g., Hoch and Loewenstein 1991; Kivetz and Simonson 2002; Mukhopadhyay and Johar 2005).

One of the most dominant models of self-regulation is the feedback-loop model developed by Carver and Scheier (1981, 1998). Feedback-loop analysis is a central development in understanding the process of self-regulation, and it is important to build on and develop it. One important issue needing further examination is the process of anticipation of potential desired and undesired outcomes (Baumeister et al. 1994, Carver and Scheier 1998). The concept of outcome anticipation lies at the heart of self-regulation. Elaboration on the potential outcomes of behavior not only makes people conscious of (un)desired standards and end-states, but also provides them with information as to whether an act has the potential to move them towards a desired end-state or away from an undesired one. Thus, considering future outcomes makes people more conscious of the possible effects of their behaviors and more aware of the standards to which to compare those outcomes. This information is useful in detecting a discrepancy between potential outcomes and desired standards, and is therefore likely to lead to better self-regulation and more appropriate modification of behavior.

Other prominent work on self-regulation has also emphasized that effective self-regulation requires the individual to be able to transcend the immediate situation by considering long-term consequences and implications (Baumeister and Heatherton 1996). When transcendence is weak and attention is bound to the here and now, the chances of self-regulation failure are increased. Therefore, one proximal cause of self-regulation failure is the failure of transcendence. According to Baumeister and his colleagues, “the factors that contribute to the success or failure of transcendence deserve further study” (Baumeister et al. 1994, 259). They show that factors directing attention to future goals and implications will tend to improve the capacity for self-regulation (Baumeister and Heatherton 1996). These may include both

situational and dispositional factors. I focus here on one such dispositional characteristic: one's tendency to elaborate on potential outcomes in the process of self-regulation.

It is important to make a distinction between modes of thinking about the future that are beneficial, even necessary, for effective self-regulation (i.e., expectations, standards and goals), and modes that are not effective in helping people regulate their behavior (e.g., outcome simulations, fantasies, ruminative thoughts) (e.g., see Anderson 1983; Gregory, Cialdini, and Carpenter 1982; Hoch 1985; Marton and Tesser 1989; Taylor et al. 1998; Oettingen and Mayer 2002). Researchers in the past have argued that imagining the future is not intrinsically beneficial for self-regulation, but must be actively harnessed to be effective for this purpose, since imagining different possibilities and engaging in mental simulations is not the same as expecting these possibilities to occur (Oettingen 1996; Taylor et al. 1998).

2.1.1 Related Theories and Constructs

The idea that peoples' actions are greatly affected by potential outcomes is central not only to self-regulation theory, but has had a long history in psychological theories of motivation (e.g., Bandura 1997; Rotter 1954; Tolman 1938). According to these theories, people motivate themselves and guide their actions by the outcomes they expect to result from given courses of behavior (Bandura 1997). Anticipated consequences have also been considered as determinants of intentions to act (e.g., Fishbein and Ajzen 1975). Outcome consideration has been conceptualized and examined as several different types of expectancy judgments - self-efficacy expectations (whether one can perform a certain behavior and is capable of achieving a particular outcome; Bandura 1997), outcome expectancies (the likelihood that performing a certain behavior will lead to the desired outcome; Carver and Scheier 1998; Bandura 1997), or general

expectations (whether the future in general will be positive or negative; Scheier and Carver 1992). The construct I examine here – elaboration on potential outcomes – adopts a multi-dimensional perspective, and represents a generalized, context-independent predisposition towards thinking about potential consequences. It goes beyond expectancy judgments, which only deal with assessing one’s capability and likelihood of achieving an outcome, and encompasses all aspects of the process of outcome consideration

2.2 CONCEPTUAL MODEL OF ELABORATION ON POTENTIAL OUTCOMES

Elaboration on potential outcomes (EPO) encompasses four dimensions that deal with different aspects of the outcome consideration process: (1) the extent to which people generate potential consequences, (2) the extent to which people evaluate the importance and likelihood of the consequences they generate, (3) the extent to which they focus on the positive consequences, and (4) the extent to which they focus on the negative consequences. These are discussed in more detail below.

2.2.1 Generation Dimension

The first dimension is *generation*. Mischel et al. (1996) point out that self-regulation and goal pursuit are very hard to execute, and individuals who can only see a situation one way or imagine one worthy outcome will be unlikely to do well. They argue that thorough consideration of the effects of an intended behavior help people to regulate behavior in pursuit of a desired goal or avoiding an undesired one. That is, considering a number of different outcomes and viewing a situation in a variety of ways is essential for self-regulation. Thus, I propose that the

degree to which people generate a variety of potential consequences before making decisions is an important element comprising the process of elaboration on potential outcomes.

2.2.2 Evaluation Dimension

The second proposed dimension – *evaluation* – is closely related to outcome expectancies, and concerns the extent to which people evaluate the likelihood and significance of potential consequences once they have generated them. Self-regulation theory suggests that outcome expectancies – peoples’ subjective probability determinations that outcomes will or will not occur – influence their decision to pursue a goal versus disengage, and are major determinants of self-regulation (Carver and Scheier 1998). Thus, I propose that an important component of the process of elaboration on potential outcomes is the degree to which people evaluate the likelihood and importance of the consequences they have generated.

2.2.3 Positive and Negative Outcome Focus Dimensions

Researchers have emphasized that it is not enough to know whether and when people regulate their behavior, but it is also necessary to understand how people deal with their world to make this happen (Higgins 1999). Self-regulatory models (Carver and Scheier 1981; 1998) make a distinction between two types of self-regulatory systems – one having a positive and one having a negative reference value. A self-regulatory system with a positive reference value has a desired end state and represents attempts to move closer to the desired end. In contrast, a self-regulatory system with a negative reference value has an undesired end state and involves attempts to move away from this undesired state. Higgins (1999) makes a similar distinction between self-regulation with a promotion focus and self-regulation with a prevention focus.

In my conceptualization of the process of outcome elaboration, I take into account the fact that people have different approaches to self-regulation, and distinguish between peoples' tendency to focus on positive or negative outcomes in the process of consequences consideration. Thus, I propose two further dimensions of elaboration on potential outcomes: *positive focus* and *negative focus*. I conceptualize positive (negative) focus as a disposition to focus on the positive (negative) consequences that might ensue when thinking about potential outcomes of a decision or action. People who tend to focus on positive potential outcomes prefer a self-regulatory system with a positive reference value, whereas people who tend to focus on the negative potential outcomes prefer a self-regulatory system with a negative reference value.

2.2.4 Self-regulation Effectiveness versus Self-regulation Approaches

Since the four proposed EPO dimensions converge on a single underlying quality (latent variable), and each dimension reflects this latent variable imperfectly, elaboration on potential outcomes can be considered a multifaceted construct (Carver 1989). I conceptualize elaboration on potential outcomes as a construct composed of four subordinate constructs (generation, evaluation, positive focus, and negative focus) that are related to each other both logically and conceptually, yet should be distinguished from one another and measured separately. EPO's sub-dimensions represent different aspects of the process of outcome elaboration, and relate to different aspects of consumers' decision-making and behavior. While the generation and evaluation dimensions relate to consumers' self-regulation *effectiveness*, and deal with whether and when consumers engage in self-regulation, the positive and negative outcome focus dimensions relate to consumers' self-regulation *approaches*, and deal with how consumers go about the self-regulation process. The fact that people approach the process of outcome

elaboration differently (i.e., they have different strategic inclinations), with positive or negative reference values in mind, does not mean that they will be either more or less effective in self-regulation, nor that they will have a greater or lesser motive to succeed (Higgins et al. 2001).

Thus, these dimensions need to be scored and examined separately. It is also important to clarify that the positive and negative outcome focus dimensions should be considered separately, as peoples' positive/negative outcome focus tendencies are not two ends of a single continuum. Someone who focuses on positive potential outcomes does not necessarily ignore negative ones and vice versa. Indeed, some individuals engage in a balanced outcome consideration and are high on both positive and negative outcome focus. Therefore, combining these dimensions is inappropriate.

The remainder of this essay is organized as follows. In a series of empirical studies employing established psychometric procedures (e.g., DeVellis 2003), I assess the reliability and validity of the proposed scale. In study 1, I confirm the dimensionality of the scale and refine it using confirmatory factor analysis. I also assess the discriminant and nomological validity of the newly developed scale by relating it to a number of established psychological constructs. Finally, known-groups validity is established and concerns about potential social desirability bias are addressed. Study 2 provides further evidence of the validity of the newly developed EPO scale. The purpose in this study is to provide a demonstration of the effect of elaboration on potential outcomes on information processing and decision making in a specific situation. In study 3, I establish a link between elaboration on potential outcomes and self-regulation by relating EPO to a variety of behaviors resulting from self-regulation (in)effectiveness. Finally, in study 4, I show that consumers with stronger EPO tendencies exhibit more self-regulation when faced with a

specific choice, and that encouraging pre-decision outcome elaboration improves self-regulation for consumers with weaker EPO tendencies.

2.3 STUDY 1: SCALE DEVELOPMENT

The purpose of study 1 is to develop the Elaboration on Potential Outcomes scale, and to assess its reliability, dimensionality, and discriminant validity. I follow standard procedure in generating the initial pool of items for the Elaboration on Potential Outcomes scale (e.g., DeVellis 2003; Bloch, Brunel, and Arnold 2003). First, I reviewed the relevant literature and closely examined instruments used to measure similar constructs. Second, I conducted in-depth discussions with behavioral experts. Third, four judges were given the definition of the four dimensions and asked to allocate the potential items to one of the four dimensions or to indicate that they did not belong to any of the dimensions. Fourth, after eliminating items that were not consistently categorized by at least three of the judges, I pretested the remaining items on a sample of 260 undergraduate students to identify items that reduced the internal consistency of the scale or that failed to load adequately in an exploratory factor analysis. These items were dropped, and new, more domain-relevant items were added, resulting in 22 items for subsequent use in study 1 (generation dimension – 6 items; evaluation dimension – 5 items; positive focus dimension – 4 items; negative focus dimension – 7 items).

2.3.1 Method

In order to assess the discriminant and nomological validity of the EPO scale, I examined whether or not it is distinct from other related constructs. As discussed earlier, the generation and

evaluation dimensions are related to self-regulation effectiveness, and can therefore be validated by relating them to other constructs that have previously been used to examine self-regulation effectiveness: impulsive buying (Rook and Fisher 1995), compulsive buying (Faber and O'Guinn 1992), need for cognition (Cacioppo and Petty 1982), consideration of future consequences (Strathman et al. 1994), and risk aversion (Donthu and Gilliland 1996). The positive and negative outcome focus dimensions are related to peoples' approaches to self-regulation, and can be validated by relating them to other constructs that have been used to examine self-regulation approaches: optimism (Scheier, Carver, and Bridges 1994), chronic regulatory focus (Higgins et al. 2001), and defensive pessimism (Norem and Cantor 1986).

I collected data from students enrolled in undergraduate classes who received extra course credit for participating in the study (n = 367; 180 male and 187 female). Participants were given survey packages containing measures representing the proposed EPO scale, the eight established scales noted above, and a measure of impression management (Paulhus 1991). For all of the scales administered, participants were asked to indicate their degree of agreement using seven point response scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Because of time availability constraints and the significant length of the questionnaire, different people received different questionnaires, and there are different sample sizes for different pairs of constructs.

2.3.2 Results and Discussion

Confirmatory Factor Analysis. In order to confirm the EPO scale's dimensionality and evaluate its items, the 22 items were subjected to confirmatory factor analysis using LISREL 8. Since the four dimensions of the scale are assumed to be conceptually and empirically related to

each other, a four-factor correlated model was estimated. Nine items that did not have sufficiently high loadings on their underlying factors were dropped, and the four-factor model was then re-estimated. Upon further investigation, I found that there was insufficient discrimination (see Fornell and Larcker 1981) between the generation and evaluation dimensions, with the squared phi correlation between these two factors (0.84) greater than the average-variance extracted for generation (0.57) and evaluation (0.60). Thus, I estimated a new three-factor correlated model, with the generation and evaluation items combined into a single dimension. The resulting item loadings are reported in Table 1.1.

The three-factor and four-factor correlated models provide similar fits to the data, and their chi-squares are not significantly different (see Table 1.2). Based on inability to discriminate between the generation and evaluation dimensions empirically, and in the interests of parsimony, I combine the two sets of items for all subsequent analysis and discussion.¹ Table 1.2 also reports various goodness-of-fit statistics for both models. These values meet or exceed recommended levels (e.g., Bollen 1989; Hulland, Chow, and Lam 1996).

Insert Tables 1.1 and 1.2 about here.

In an effort to assess the discriminant validity of sub-dimensions of the EPO scale, two additional models were estimated and compared to the three-factor correlated model. Specifically, I estimated a three-factor uncorrelated model and a one-factor (unidimensional) model. Overall model fit statistics for these models are reported in Table 1.2. These results provide strong evidence for retaining a three-dimensional, correlated factor structure for the EPO scale.

¹ Throughout the analyses in the essay, I estimate both separate scores for generation and evaluation, and a combined score. I constantly find that results obtained using the separate scores are similar to results obtained using the combined score. Since keeping the generation and evaluation dimensions separate does not provide any further information, according to guidelines for testing multifaceted constructs (Carver 1989) I combine these two dimensions for all analysis reported in the essay.

After reducing the scale to 13 items (shown in Table 1.1), the EPO instrument was administered to a new sample of 368 respondents, both students and adult non-students. These data were then analyzed through confirmatory factor analysis using LISREL 8. Results confirmed that a three-factor correlated model provides a very good fit to the data, and all goodness-of-fit statistics meet or exceed recommended levels ($RMSEA = .076$; $GFI = .92$; $AGFI = .90$; $CFI = .95$; $IFI = .95$; $RFI = .91$). Furthermore, all scale items had factor loadings above .76 providing strong evidence for the scale's reliability.

Internal Consistency and Descriptive Statistics. Means, standard deviations, and coefficients alpha for the final 13-item scale are presented in Table 1.3. Cronbach's alpha estimates for the three subscales provided evidence for good internal consistency (Nunnally 1978). The correlations between the three dimensions of the EPO scale are also reported.

Insert Table 1.3 about here

Test-Retest Reliability. To assess the final scale's test-retest reliability, EPO was administered to a new sample of 114 undergraduate students who received extra credit for their participation. Ninety seven of these students also completed a second administration one month later. I allowed for a one month gap between the two assessments, which is enough time for memory effects to fade. The resulting between-administration correlations for all three dimensions were high ($r_{\text{generation/evaluation}} = 0.76$; $r_{\text{positive focus}} = 0.78$; and $r_{\text{negative focus}} = 0.78$; all p -s $< .0001$), demonstrating strong test-retest reliability, and confirming the trait's stability over time.

Nomological Validity. In order to establish the EPO scale's nomological validity, I related its three dimensions to a number of established constructs. As noted earlier, the generation/evaluation dimension predicts self-regulation effectiveness, and should therefore be related to other constructs that have been used in the past to examine whether and when people

engage in self-regulation. On the other hand, the positive and negative outcome focus dimensions predict consumers' self-regulation approaches, and are therefore expected to be related to other constructs that assess how people approach self-regulation.

Table 1.4 describes each construct measured in study 1 and its predicted (and actual) relationship with the appropriate dimension of EPO with which it is expected to correlate. Table 1.4 also reports each construct's correlations with the other EPO dimensions. I conducted dependent correlation tests using the Hotelling-William test (Steiger 1980) to examine differences in the correlations across the three dimensions. Results revealed in general that there are significant differences in the relative strength of each construct's correlation across the three dimensions, which supports my contention that the three EPO dimensions correlate with different sets of constructs. Furthermore, all of the predicted correlations are significant, and in the expected direction. Since all of these correlations are significantly different from unity, I conclude that the EPO scale is nomologically linked to related constructs while also demonstrating clear discriminant validity from them (Lastovicka et al. 1999).

Insert Table 1.4 about here

Correlations between elaboration on potential outcomes and the other constructs measured in study 1 are presented in Table 1.4, and are described more fully below.

Constructs related to self-regulation effectiveness

The five related constructs I explore here that assess individuals' self-regulation effectiveness (impulsive buying, compulsive buying, need for cognition, consideration of future consequences, risk aversion) should all be significantly related to the generation / evaluation dimension of EPO. In general, they should not be related to the other two dimensions. (The

exception is risk aversion, to which the negative focus dimension should also be significantly – and positively – related.)

Impulsive buying. The impulsive buying instrument captures “consumers’ tendency to buy spontaneously, unreflectively, immediately, and kinetically” (Rook and Fisher 1995, 306). As expected, impulsiveness is negatively correlated with the generation/evaluation dimension of the EPO scale ($r = -0.33, p < .05$).

Compulsive buying. Compulsive buying behavior reflects the degree to which a consumer makes excessive purchases as a means of dealing with undesirable mood states and alleviating negative feelings (Faber and O’Guinn 1992). As expected, compulsive buying is negatively related to the generation/evaluation dimension ($r = -.25, p < .01$).

Need for Cognition. Need for cognition is conceptualized as the relative proclivity to process information and is predictive of the manner in which people deal with information processing tasks and social information (Cacioppo et al. 1996). Need for cognition has a significant positive correlation with generation/evaluation ($r = 0.13, p < .01$).

Consideration of Future Consequences (CFC). This construct assesses differences in the extent to which individuals are likely to consider the long-term implications of their behaviors and to use distant as opposed to immediate goals as guides for current actions (Strathman et al. 1994). Results confirm my prediction that people high on the generation/evaluation dimension will also be high on CFC ($r = 0.44; p < .01$).

Risk Aversion. Risk aversion assesses the degree to which a person expresses a desire to avoid taking risks (Donthu and Gilliland 1996). As expected, risk aversion is positively related both to peoples’ tendency to generate and evaluate potential consequences ($r = 0.30, p < .01$) and to specifically focus on negative outcomes ($r = 0.32, p < .01$).

Constructs related to self-regulation approach

I expect that the four established constructs studied here that assess individuals' self-regulation approach (optimism, promotion regulatory focus, prevention regulatory focus, defensive pessimism) should all be significantly related to the positive focus and negative focus dimensions of EPO. On the other hand, they are not expected to be related to the generation / evaluation dimension.

Optimism. Optimism was measured using the revised version of the Life Orientation Test (LOT), which assesses generalized expectancies for positive versus negative outcomes (Scheier, Carver, and Bridges 1994). As expected, optimism is positively correlated with positive outcome focus ($r = 0.44, p < .01$), and negatively correlated with negative outcome focus. ($r = -0.49, p < .01$). As recommended by some researchers (Marshall et al. 1992), I also calculated separate optimism and pessimism scores, and found very similar results.

Promotion and Prevention Regulatory Focus. Higgins et al. (2001) developed the Regulatory Focus Questionnaire (RFQ) to measure both chronic-promotion and chronic-prevention goal orientations within individuals. My results show that a chronic promotion focus is related to peoples' tendency to focus on positive outcomes ($r = .20, p < .01$), and that a chronic prevention focus is related to peoples' tendency to focus on negative outcomes ($r = .24, p < .01$). I also administered the Selves Questionnaire (Higgins et al. 1986), which measures chronic ideal and chronic ought orientation, which are associated with promotion and prevention regulatory focus respectively. I found that, as expected, chronic ideal orientations has positive correlation to positive outcome focus ($r = .26$), and negative outcome focus has a positive correlation with chronic ought orientation ($r = .25$).

Defensive pessimism. I used the Optimism-Pessimism Prescreening Questionnaire (Norem and Cantor 1986) to identify self-reported use of optimistic or defensively pessimistic strategies. As expected, defensive pessimism is positively related to negative outcome focus ($r = .50, p < .01$) and negatively related to positive outcome focus ($r = -.35, p < .01$).

Tests for social desirability biases

Because considering the consequences of one's behavior can be viewed as a socially desirable trait, I test the extent to which the EPO subscales are correlated with the measure of desirable responding proposed by Paulhus (1991). (Paulhus 1991). The average score on his Impression Management (IM) scale for my study is 4.44 ($SD = 3.18$; $\alpha = 0.78$). All three EPO subscales have relatively weak correlations with IM ($r = .16$ for generation/evaluation, $r = .01$ for positive focus, and $r = -.01$ for negative focus; $p < .05$ only for the first correlation). These results suggest that responses on these subscales are not strongly influenced by social desirability motives.

To further examine the possibility of a social desirability bias, I followed the procedure recommended by Mick (1996) and computed partial correlations between EPO and the other, related constructs discussed previously, holding impression management constant. The comparative results between simple and partial correlations revealed very small absolute differences in the range of 0.00 (for optimism and defensive pessimism) to 0.03 (for CFC), indicating no spurious correlations as a result of a social desirability bias. Next, I tested a hierarchical regression model that included (1) impression management, (2) the generation / evaluation dimension of the EPO scale, and (3) the interaction between IM and EPO as independent variables, for the purpose of predicting variance in compulsive buying – a likely consequence of EPO. Results revealed that while EPO is a significant predictor of compulsive

buying ($t(366) = -1.98, p < .05$), the interaction term is not significant ($t(366) = -1.14, p > .1$), confirming that IM does not moderate the form of the relationship between EPO and its consequence (Mick 1996).

Gender Differences

No gender differences were found in the samples collected in Study 1 in participants' scores on the three dimensions of EPO, or in the association of EPO with the other variables examined in the study.

2.3.3 Summary

Study 1 provides strong support for the psychometric properties of the EPO scale and indicates its ability to significantly further our understanding of how people process future outcomes consideration. In this study I (1) refined the EPO scale; (2) confirmed its reliability and factor structure; (3) established that social desirability bias is not a significant problem for the EPO measure; and (4) established the construct's discriminant and nomological validity by demonstrating that EPO is conceptually and empirically distinct from impulsive buying, risk aversion, need for cognition, consideration of future consequences, optimism, chronic prevention and promotion focus orientation, compulsive buying and defensive pessimism.

It should be noted that the initial conceptualization of EPO as a four dimensional construct failed to materialize in the data. I did not find adequate differentiation between the generation and evaluation dimensions of the scale. It seems that consumers' tendency to generate a variety of potential outcomes and their tendency to evaluate the likelihood and importance of

these outcomes are very closely related to each other, and have similar relationships to the same constructs and behaviors, and therefore should be examined together.

2.4 STUDY 2: PREDICTIVE VALIDITY OF THE EPO SCALE

The main goal of this study is to provide evidence of the predictive validity of the EPO scale by showing the effects of elaboration on potential outcomes on information processing and decision making. I examine whether peoples' scores on the three subdimensions of the EPO scale predict the extent to which they think about potential consequences in a decision-making situation. In particular, I expect that participants' scores on the generation/evaluation dimension will predict the number of consequences they generate when making a decision, that their scores on the positive focus dimension will predict the number of positive consequences generated, and that their scores on the negative focus dimension will predict the number of negative consequences generated.

I also assess whether scores on the positive and negative focus subscales predict the likelihood of undertaking a potentially risky endeavor. Participants' positive focus scores should have a positive influence on the likelihood of engaging in the behavior, whereas their negative focus scores should have a negative influence. Support for this prediction comes from the literature on regulatory focus, which has found that the promotion and prevention modes of self-regulation appear to foster different strategic inclinations and different attitudes towards risk (Crowe and Higgins 1997; Pham and Avnet 2004). While differential inclinations to focus on positive or negative outcomes are expected to predict consumers' reported likelihood to engage

in the presented behaviors, their scores on the generation/evaluation EPO dimension are not expected to be predictive in this case.

Finally, I examine whether the numbers of positive and negative consequences people generate when making a decision mediate the relationships between their positive and negative focus subscale scores and their likelihood to engage in a potentially risky behavior. I predict that people who focus on the positive outcomes to a higher extent are more likely to undertake risky behaviors because they generate a greater number of positive outcomes, thereby making the potential gains resulting from the behavior more salient. In contrast, people who focus on the negative outcomes to a higher extent are expected to be less likely to undertake the behaviors because they generate more negative outcomes, making possible losses more salient.

2.4.1 Method

One hundred and sixty undergraduate students participated in this study for extra course credit. Participants were presented with two scenarios, each describing a situation in which they had to make a decision. They were asked to recount their thoughts as they were deciding what to do, as well as their intentions. One scenario described a decision of whether or not to have Lasic surgery, while the other described a decision of whether or not to charge an expensive electronics good on an already heavily-charged credit card.

The order in which the scenarios were administered was counterbalanced across participants, and subsequent analysis showed that this order does not affect the results. After reading each scenario, participants were asked to list in writing the things going through their mind as they decided what to do. After they had listed their thoughts, participants were asked to indicate, on an 11-point scale, their likelihood of engaging in the behavior described in the

scenarios, where 1 was “not likely” and 11 was “very likely”. After completing these tasks for both scenarios, participants were asked to code the valences of the thoughts they had previously listed. Participants then received a new questionnaire, part of a seemingly unrelated study, that contained other measures not related to this study and the EPO scale.

Participants’ thoughts listed in response to the two scenarios were coded as belonging to one of two categories: (a) consequences, or (b) non-consequences. Coding was done by two judges unaware of the study hypotheses for all 160 participants. Inter-rater agreement was 90% for the *Lasic surgery* scenario, and 93% for the *Credit card* scenario, with disagreements resolved through discussion. As a further measure of inter-rater reliability I calculated the Kappa coefficient (Cohen 1960), which verifies that agreement between the two raters exceeds that expected by chance. Kappa was determined to be 0.83 for the Lasic surgery scenario, and 0.87 for the Credit card scenario, which indicate excellent inter-rater agreement (both coefficients significantly different from zero at $p < .001$). Consequences were classified as positive or negative based on participants’ own codings.

2.4.2 Results

For each of the participants, scores for the three EPO dimensions were calculated. I also counted the number of positive ($\bar{X}_1 = 0.89, S = 0.9$; $\bar{X}_2 = 0.51, S = 0.7$), negative ($\bar{X}_1 = 1.68, S = 1.1$; $\bar{X}_2 = 1.21, S = 0.9$), and total consequences ($\bar{X}_1 = 2.55, S = 1.4$; $\bar{X}_2 = 1.71, S = 1.1$) people generated in response to the two scenarios. Since the numbers of positive, negative, and total consequences generated are count variables and have a Poisson distribution, I employed Poisson regressions to analyze how the EPO dimensions affect them.

The results provide support for my predictions (see Table 1.5). As expected, the generation/evaluation dimension of the EPO scale is a significant predictor of the number of consequences generated in response to the two decision situations, the negative dimension is positively and significantly related to the number of negative consequences generated, and the positive dimension of the scale is positively and significantly related to the number of positive consequences generated. These results are consistent across both scenarios.²

Insert Table 1.5 about here.

I next examined the people's reported likelihood to undertake a Lasic surgery ($\bar{X} = 5.33$, $S = 2.82$) and charge an expensive item ($\bar{X} = 4.70$, $S = 2.46$). The likelihoods people reported in the two scenarios were positively and significantly correlated ($r = .18$, $p < .05$). In order to examine my predictions regarding the decisions people made in the two situations presented to them, I ran two regressions. As expected, peoples' scores on the positive focus dimension of the EPO scale are positively and significantly related to stated likelihood to undergo Lasic surgery and charge an expensive electronics item. Scores on the negative focus dimension are negatively and marginally significantly related to stated likelihood to undertake Lasic surgery, but not to likelihood to charge an expensive item.

To test for mediation, I followed the procedure recommended by Baron and Kenney (1986). As discussed above, I already ran a series of regressions and found that peoples' scores on the positive and negative dimension of the EPO scale are significant predictors of the number

² Furthermore, participants' scores on the generation/evaluation subscale are significantly related to the combined number of positive and negative consequences they generated. These results provide further evidence of the validity of the subscales, since they confirm that people with a greater general tendency to generate consequences come up with more positive and more negative consequences in a specific decision situation.

of positive and negative consequences people generate in response to the decision scenarios (step 1), and that these scores are significant predictors of their likelihood to engage in risky behaviors (step 2) (see Table 1.5). Finally, in step 3, I run regressions both with scores on the positive and negative dimensions, and with the number of positive and negative outcomes generated, as predictors of behavior likelihood. I find that the effects of the positive and negative subdimensions of the EPO scale on peoples' likelihood to engage in the risky behaviors are mediated by the number of positive and negative consequences generated in response to the scenarios, respectively. Specifically, I find that the effect of positive focus on likelihood is partially mediated by the number of positive consequences people generated in response to the first scenario ($b_{positive_focus} = 0.60, p < .01, b_{positive_consequences_1} = 0.69, p < .01$) but not mediated by the number of positive consequences people generated in response to the second scenario ($b_{positive_focus} = 0.44, p < .05, b_{positive_consequences_1} = 0.08, p > .6$). Second, I find that the effect of negative focus on likelihood is fully mediated by the number of negative consequences people generated in response to the first scenario ($b_{negative_focus} = -0.25, p < .3, b_{negative_consequences_1} = -0.44, p < .01$), but not to the second one ($b_{negative_focus} = -0.25, p < .2, b_{negative_consequences_2} = -0.22, p < .3$).

I conducted further analysis in order to address concerns about possible multicollinearity problems resulting from intercorrelations between the independent variables in my analyses. However, the VIF values are all within the acceptable range, indicating that there are no concerns about multicollinearity and coefficient instability.

2.4.3 Discussion

By providing evidence that elaboration on potential outcomes has an effect on information processing and decision making, the results of this study support the predictive validity of the EPO subscales and the viability of the elaboration on potential outcomes construct. This study experimentally established that scores on the EPO subscales are significant predictors of thought processes in a decision making situation. Furthermore results revealed that peoples' tendency to focus on the positive and negative potential outcomes predicts the decisions they made in risky situations, with positive focus scores being positively related to likelihood to engage in risky behaviors, and negative focus scores being negatively related to this likelihood.

2.5 STUDY 3: CONSEQUENCES OF ELABORATION ON POTENTIAL OUTCOMES

Earlier, I argued that elaboration on potential outcomes is an important determinant of self-regulation. However, an important question arises: does EPO incrementally explain self-regulatory behavior above and beyond what is accounted for by other constructs? In a review of the literature on self-control failure, Baumeister Heatherton, and Tice (1994) concluded that self-regulation failure is a central part of many personal and social problems in modern societies. Self-regulation failure refers to problems that arise when one intentionally tries to initiate, alter, or inhibit a specific response or behavior but fails to do so because of insufficient effort (underregulation) or because such efforts are ineffective or counterproductive (misregulation).

Self-control failure can lead to undesirable behaviors such as impulsive buying, excessive credit card debt, overeating, procrastination and task avoidance, and excessive drinking. In this

study I examine whether consumers' tendency to think about the implications of their behaviors can predict the extent to which they engage in these behaviors. The effectiveness of self-control depends on multiple factors, including chronic traits, possession of clear, well-defined standards and goals, and careful monitoring of one's behavior (e.g., Baumeister, et al. 1994; Baumeister and Heatherton 1996; Baumeister 2002). Consumers who generate and evaluate a variety of potential consequences when deciding how to behave, as measured by the generation/evaluation dimension of the EPO scale, should be more likely to persist in goal pursuit and exercise effective self-regulation. Elaborating on the potential implications of one's behavior is likely to draw attention to possible desired consequences and warn against possible negative ones, making goals and standards more prominent and aiding self-regulation efforts.

2.5.1 Procedure

To show that elaboration on potential outcomes predicts a number of (un)desirable consumer behaviors above and beyond what other, related constructs predict, I administered a survey that included measures of procrastination, tendency to finish projects on time, credit card use, healthy eating, and exercising. To enhance the external validity of the findings for this study I recruited 302 adults (131 male and 171 female) ranging in age from 20 to 70 years old. After completing a distracter task, subjects were given a second, seemingly unrelated questionnaire that contained the EPO scale as well as measures of four conceptually related traits used to predict self-regulation behaviors in past research: cognitive self-control, consideration of future consequences, risk aversion, and buying impulsiveness.

Independent Variables

Generation and evaluation of potential outcomes. The generation/evaluation dimension of the EPO scale measures peoples' tendency to generate and evaluate the potential outcomes of their decisions and actions. The average score on this dimension for this sample was 4.78 ($s = 1.08$; Cronbach's alpha = 0.90).

Self-control. Research has suggested that self-regulation is a central and durable feature of personality (Mischel et al. 1988; Baumeister 2002). Most research on self-regulation suggests that some people chronically have more problems with self-control than others. I assess self-control using the Cognitive Self-Control Scale, a 21 item scale that measures skills used to regulate affect and cognitions (Rohde et al. 1990). For this sample, the average self-control score is 4.57 ($s = .75$; Cronbach's alpha = 0.87).

Other Constructs. I also included three scales for constructs discussed in study 1: Consideration of Future Consequences (Strathman et al. 1994), Risk Aversion (Donthu and Gilliland 1996), and Buying Impulsiveness (Rook and Fisher 1995). The average score for the Consideration of Future Consequences scale in the sample is 4.40 ($s = .70$; Cronbach's alpha = 0.77). This sample's average risk aversion score is 4.52 ($s = 1.06$; Cronbach's alpha = 0.60), while the average impulsiveness score is 3.40 ($s = 1.25$; Cronbach's alpha = 0.90).

Dependent Variables

Following Baumeister et al.'s review (1994) of different spheres of self-regulation failure, I included in the study a number of behavioral contexts that reflect behaviors that can result from lack of self-regulation: procrastination, credit card abuse, excessive drinking, unhealthy eating, and avoidance of exercise.

Procrastination. Because a particular task is associated with unpleasant emotions, people who procrastinate concentrate on eliminating these negative emotions by avoiding the task altogether (Baumeister et al. 1994; Ferrari, Johnson, and McCown 1995). As a result, they suffer from considerable stress and often perform far below their capabilities. I measure procrastination using the 15 item Adult Inventory of Procrastination (Ferrari, Johnson, and McCown 1995). My sample's average procrastination score is 3.24 ($s = .95$; Cronbach's alpha = 0.86).

Credit Card Abuse. A second area in which people suffer from poor self-control is money management and more specifically credit card misuse (Baumeister et al. 1994). Credit cards encourage people to buy things without immediately paying for them, making only a minimum payment each month, and carrying the balance of the debt at a very high interest rate. There are several approaches to using credit cards, and these may be linked to peoples' self-regulatory style and effectiveness (Baumeister et al. 1994). I asked participants whether they have credit cards, and those who do then reported how often they pay their credit card balance in full. Their responses ranged from 1 (Never, I always carry a balance) to 4 (I pay my entire balance every month). (Note that for this behavior, only 258 respondents possessed at least one credit card.).

Alcohol Abuse. Baumeister and colleagues (1994) identified alcohol consumption as one area where self-regulation failure is particularly dangerous and destructive. I measured alcohol abuse and excessive drinking in terms of frequency of drinking by a validated index (Newcombe, Measham, and Parker 1995), which assesses the frequency of drinking, ranked on a scale ranging from 1 (never) to 10 (every day).

Healthy Diet and Regular Exercise. Finally, I measured two other domains where effective self-regulation is particularly important – keeping a healthy diet and exercising

regularly. Groups that have poor nutritional habits are especially likely to develop weight problems (Sobal and Stunkard 1989). I predict that people who are higher on EPO will have a healthier diet, since they will be more likely to consider the consequences of ingesting unhealthy food on a regular basis, more likely to consume healthy food, and more likely to engage in compensatory behaviors such as exercise. I measured healthy diet in terms of the frequency of consumption of fruits and vegetables – two of the major components of the Healthy Eating Index developed by the Center of Nutrition Policy and Promotion at the U.S. Department of Agriculture (see Basiotis et al. 2004). I also assessed exercise habits by asking the frequency of physical activity (Laaksonen et al. 2002). Both frequencies were assessed on a 10 point scale ranging from 1 (never) to 10 (every day).

2.5.2 Results and Discussion

To assess whether EPO predicts self-regulation failure in the different behavioral domains above and beyond the effects of other, related traits, I employed a multivariate analysis of variance with the generation/evaluation dimension of the EPO scale, self-control, impulsiveness, consideration of future consequences, and risk aversion as independent variables, and measures of drinking, healthy eating, exercising, money management, and procrastination as dependent variables. I employed MANOVA in order to take into consideration the relationships that exist between the dependent measures. As can be seen in Table 1.6, the tendency to generate and evaluate potential outcomes was a significant and substantial predictor for all the dependent variables.

Insert Table 1.6 about here

I conducted further analysis in order to address concerns about possible multicollinearity problems resulting from intercorrelations between the independent variables. However, the VIF values are all within the acceptable range, indicating that there are no concerns about multicollinearity and coefficient instability.

To further confirm that EPO predicts self-regulation failure behaviors above and beyond the effects of other, related traits, I conducted additional analysis and employed a series of stepwise regression models (e.g., Russell, Norman, and Heckler 2004). In each model, self-control, impulsiveness, consideration of future consequences, and risk aversion were first entered as independent variables that might explain a specific behavior. EPO was entered into the model in the second step with the other four independent variables retained in the model. I found strong evidence of the incremental predictive ability of EPO. Results revealed that tendency to generate and evaluate potential outcomes was a significant and substantial predictor in all regression models I estimated, and the incremental proportion of variance accounted for by the generation/elaboration score led to a significant improvement in R^2 between step 1 and step 2, with $p < .05$ for all but one model (healthy eating).

Data collected in this study showed that consumers' tendencies to generate and evaluate potential outcomes is a significant predictor of behaviors resulting from (in)effective self-regulation such as drinking, healthy eating, exercising, money management, and procrastination, thus further establishing the predictive validity of the construct. This is evidence that the EPO construct and its measurement can increase our understanding of the determinants of effective consumer self-regulation. Furthermore, as a means of establishing the construct's discriminant validity, I demonstrated that EPO is conceptually and empirically distinct from cognitive self-control, impulsiveness, consideration of future consequences, and risk aversion, as it possesses

superior predictive power above and beyond these other independent variables employed in the models.

2.6 STUDY 4: EPO AND SELF-REGULATION IN INVESTING FOR RETIREMENT

To this point I have demonstrated that the EPO scale is a reliable and valid instrument and the EPO construct is an important determinant of self-regulation. In this fourth study I provide evidence that consumers with higher levels of EPO exhibit more efficient self-regulation when faced with a specific choice. Furthermore, I show experimentally that elaboration on potential outcomes can be primed and that this priming can improve self-regulation for consumers with lower levels of EPO as well.

Recent studies of consumers' investments show that consumers generally under-invest in savings (e.g., Morgenson 2003). Since investment decisions have major implications for investors' future financial welfare, this consumer tendency is likely to create significant problems in the future for both individual consumers and society as a whole. Researchers have started to examine consumer investment decisions in view of self-regulation theory. For example, Zhou and Pham (2004) argued that since investment decisions are typically made to fulfill goals that are distant in time, these decisions are likely to be guided by processes of self-regulation. Other researchers have also used self-regulation theory to examine consumer investment decisions, and found a relationship between failure to invest and self-control (e.g., Laibson, Repetto, and Tobacman 1998).

