How Effortful Decisions Get Enacted: The Motivating Role of Decision Processes, Desires, and Anticipated Emotions

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ABSTRACT

Building on recent research examining the influence of decision making on subsequent goal striving and decision enactment, we consider and elaborate on the mechanisms through which effortful decisions are made, maintained, and enacted. Our proposed framework builds on the Dholakia and Bagozzi (2002) model, distinguishes between two important types of intentions and desires, and shows that the motivation-mustering function of the decision process is mediated by goal and implementation desires. In addition to decision processes, the roles of goal feasibility, anticipated emotions, attitudes, subjective norms, and perceived behavioral control are also elaborated on. Through a two-wave field study tracking real decisions and their pursuit by participants, we find empirical support for our model of effortful decision making and enactment. Copyright © 2003 John Wiley & Sons, Ltd.

KEY WORDS decision enactment; desire; motivation; goal setting; goal striving

INTRODUCTION

An important condition for any successful decision, regardless of the strategy used, alternatives chosen, or resources employed, is whether the chosen goal or course of action is realized by the decision maker. This issue of decision realization is particularly salient when enacting the decision is not straightforward, but rather involves significant post-decision effort on the decision maker’s part for successful enactment. Decision researchers have accordingly noted that while many models of choice seem suitable as guides to intelligent action, they are more problematic when predicting behavior, especially for small groups or individual decision makers (March, 1978). Difficulty in decision enactment might arise from many different sources: a
significant time-lag between reaching the decision and an opportunity to enact it; incongruence of the chosen alternative with other short- or long-term goals; countervailing temptations; etc.

In such cases, the decision maker may be said to engage in processes of *goal striving*—i.e. in effortful pursuit of the chosen decision—after selecting a goal (Bagozzi & Dholakia, 1999; Gollwitzer, 1996; Gollwitzer & Bayer, 1999). During the goal-striving process, the decision must be remembered, the opportunity for enactment recognized, one or more instrumental acts or goal-directed behaviors must be activated and coordinated by the decision maker at the future opportune time, and various post-decision deliberative and motivational processes (e.g. planning, monitoring of progress, overcoming impediments, resisting temptations) must be conducted in the support of decision enactment (Bagozzi, 2000).

While some theoretical frameworks such as image theory (Beach, 1993; Beach & Mitchell, 1998), the model of action phases (MAP) (Gollwitzer, 1996; Heckhausen & Kuhl, 1985), and differentiation and consolidation theory (Svenson, 1992, 1997; see Dholakia & Bagozzi, 2002 for a review) consider important aspects of both decision making and goal striving, most existing research has focused on either one or the other. In general, whereas behavioral decision theorists have emphasized pre-goal pursuit issues, action psychologists have focused more on goal striving. In spite of this disciplinary demarcation, many interesting questions regarding enactment of effortful decisions lie at the cusp of behavioral decision theory and action psychology domains, and remain to be reconciled.

One such interdisciplinary question pertains to the influence of the decision-making process on the conduct and success of subsequent goal striving. Considering this issue, Dholakia and Bagozzi (2002) recently showed that the process by which choices are made (such as the effort invested by the decision maker, its perceived importance, and level of confidence in the decision-making process), all have *motivation-mustering potential*—energizing the decision maker and increasing the likelihood of decision enactment—after controlling for the influence of the motivational mechanisms identified by action psychologists. This research reported significant unmediated paths from two of the three decision-process characteristics (effort investment and confidence) to decision enactment.

In spite of the value of these findings, this work did not address the question of process fully. This question may be phrased as follows: *What are the psychological mechanisms through which the decision-making process influences goal striving and its outcomes* (i.e. success or failure to eventually enact the decision)? Dholakia and Bagozzi (2002; referred to hereafter as D&B) addressed this issue only cursorily, suggesting that specific mediator variables may play an influential role in explaining the direct unmediated effects that they found. They stated that: ‘[an] important extension . . . is to examine the possibility that intervening psychological processes not considered here may mediate the direct effects of the three decision process characteristics (effort investment and confidence) to decision enactment’ (p. 19).

A study of these mediating processes and the relevant theoretical constructs in greater detail is of value for at least two reasons. First, this knowledge is likely to provide insight into the nature of the unmediated effects found by D&B—i.e. an understanding of the specific mechanisms through which the motivation-mustering function of the decision-making process occurs. Second, and importantly, such a study would also enable the construction of an elaborate motivation-based theoretical account of the decision-making and enactment process for effortful decisions, applicable to a variety of decision-making domains, and further bridge the gap between the behavioral decision making and the action psychology disciplines.

Our objective is to examine this question. We build on, and deepen, the D&B theoretical framework by considering and elaborating on the mediating role of goal and implementation desires (motivational constructs), positive and negative anticipated emotions (emotional constructs), and such constructs from the attitude theory literature as attitudes, subjective norms, and perceived behavioral control, in the decision-making and enactment process. To conduct an empirical test of our proposed model of effortful decision making and enactment, we study real effortful decisions made by individuals. What emerges from this analysis is a comprehensive theoretical account of the enactment of non-routine, effortful decisions by
individuals. This model directly addresses the question of process, explaining the mechanisms through which decision making influences goal striving and decision enactment.

THEORETICAL MODEL OF EFFORTFUL DECISION MAKING AND ENACTMENT

The MAP provides a useful starting point for our analysis of effortful decisions (Gollwitzer, 1996). It conceptually distinguishes between decision making and goal striving, and proposes that a decision has two components. The first component is the goal intention, the decision maker’s self-commitment to achieve a chosen goal. According to the MAP, the goal intention is formed as a result of deliberative processes wherein available alternatives are each gauged for their desirability and feasibility. The choice of goals, in the behavioral decision making sense, occurs at this point in the model. The MAP does not consider how these goal intentions come about in much detail (i.e. the criteria and contingencies used in goal selection) but rather focuses on post-decision processes.

However, behavioral-decision theorists have extensively studied analytical strategies and heuristics used in goal selection (e.g. Beach, 1990; Naylor & Ilgen, 1984; Svenson, 1997). For example, Beach (1993) elaborates on the pre-screening process, and describes the procedures through which multiple goals are narrowed down, and one selected. Svenson (1992, 1997) describes how available information is organized and different decision rules used during the pre-decision phase of differentiation in his dif-con theory. The formation of a goal intention implies that through various decision-making processes, the individual has chosen one goal and is committed to attain it. Such a goal intention corresponds to an adoption decision for goals in image theory (Connolly & Beach, 1998), and is consistent with Naylor and Ilgen’s (1984) theory of goal-setting.

The MAP posits that for effortful non-routine goals, the decision maker then proceeds to the selection of an implementation plan, considering and finalizing details regarding when, where, how, and how long to perform goal-directed action in the service of decision enactment. This component is called an implementation intention in the MAP. Image theory refers to this as the adoption decision for plans (Beach & Mitchell, 1998). The general form of the implementation intention is ‘I intend to do or perform X when situation or contingency Y occurs’ (Bagozzi, 2000). The choice of means in the behavioral-decision-making sense occurs at this phase. The implementation intention serves many motivational purposes in goal striving, such as creating a perceptual readiness for action enactment, dispelling conflict due to other choices, and supporting resumption of action after interruptions (see Brandstätter, Langfelder, & Gollwitzer, 2001).

To summarize, decisions are made at two levels according to the MAP: first at the level of goals, and then at the level of actions needed to attain the chosen goal. This conceptualization is consistent with views in both the decision-making literature (e.g. Beach & Mitchell, 1998; Carver, Lawrence, & Scheier, 1996) and the literature on hierarchical organization of goal-directed behavior (Bagozzi & Dholakia, 1999; Gollwitzer, 1996; Perugini & Conner, 2000).

Corresponding to the MAP, in our proposed model, graphically presented in Figure 1, goal intention and implementation intention are important, yet distinct, constructs. It is useful to note that this distinctiveness is also consistent with the image theory distinction between the trajectory image (the decision maker’s goal agenda) and the strategic image (plans that are relevant to the attainment of goals in the trajectory image) (Beach & Mitchell, 1998). In a temporal sense, the goal intention precedes the implementation intention, since the goal must be chosen first, before the means to attain it can be considered and selected (Beach & Mitchell, 1998; see also Perugini & Bagozzi, 2003; and Malle & Knobe, 1997).

The role of desires

Whereas intentions represent the proximal determinants of action in models of goal-directed behavior, they do not fully represent the preceding motivational process—i.e. how a particular goal or course of action gets energized and endowed with commitment, or how reasons for goal attainment or action enactment,
are transformed into intentions (Bagozzi, 1992; Wright & Brehm, 1989). An emerging body of work suggests that desires are necessary antecedents to intentions in models of effortful, goal-directed behavior. Whereas goals refer to the specific end-state(s) that the decision maker seeks to attain after a conscious deliberative process of selection, desires pertain to the intensity or level with which the goal is sought (Bagozzi & Dholakia, 1999; see Naylor & Ilgen, 1984, for a similar view).

Desires have long been accorded the central impetus for intention formation by philosophers of mind and action (e.g. Bratman, 1987; Davis, 1984; Mele, 1995; Searle, 1983), but have only recently been given attention by psychologists. In this regard, recent research in attribution theory (Malle, 1999; Malle & Knobe, 1997) and action psychology (Perugini & Bagozzi, 2003) has distinguished between the desire and intention constructs. This work suggests that an intention requires, among other things, that the decision maker has a desire for an outcome and holds beliefs to the effect that specific behaviors will lead to particular outcomes (Malle & Knobe, 1997; Mele, 1995).

Desire thus represents the motivational impetus of the volitional decision-making process, and serves to integrate a series of emotional, cognitive, self-perception, and social appraisals of the decision maker prior to intention formation. It is a necessary antecedent of the decision maker’s intentions. In our model, corresponding to the two intention types, desire is viewed as functioning at two different stages in the decision-making process and is represented by two distinct constructs: goal desire and implementation desire (see Figure 1).

**Goal desire**
Goal desirability is an important consideration for the decision maker according to the MAP. But it is useful to make distinction between goal desirability, the value of a particular goal outcome, and goal desire, the
motivational state of mind of the decision maker. It may be argued that the notion of desirability is limited and not determinative of action without a consideration of desire, especially for goal-directed effortful decisions. A person may value something and recognize its desirability but not want to acquire or possess it, i.e. have no desire for it. In other words, whether a decision maker acts in relation to a ‘desirable’ end-state requires that he/she desire to achieve that end-state. For instance, a consumer committed to voluntary simplicity, a growing movement in society, may view a new wardrobe or a luxury car as being ‘desirable,’ but may not want to acquire the object. On the other hand, a person on a diet may view oatmeal as tasteless and not very desirable, but may yet desire to purchase and consume it for health reasons. In a sense, goal desire represents a necessary condition for the decision-making process to proceed to goal choice in the motivated functioning of the decision maker (see Figure 1). In addition, decision process characteristics (discussed below) influence goal desire.

**Implementation desire**

The particular actions needed for goal realization are not stipulated or referred to by a goal intention. That is a desire for, and intention to achieve, a goal leave open the means for accomplishing the goal (Vroom & Yetton, 1973). Additional information processing and decision making, aided by motivational and emotional processes, are required to transform a goal intention into action. Once a goal intention is formed, the decision maker may move to the consideration of action alternatives, and to the selection of specific means to attain a chosen goal. In this regard, the second function of desire in our proposed model is to transform reasons and motives for choosing a goal and one’s goal intention into an implementation intention. (Bagozzi, 1992, 2000; Malle & Knobe, 2001). We refer to this type of desire as implementation desire. It reflects how strongly the decision maker wants to enact specific goal-directed behavior(s). Whereas goal desires are directed at end states, final goals, and intrinsic needs of the decision maker, implementation desires are targeted at means to the chosen end, energizing the intentions to perform instrumental acts or goal-directed behaviors (e.g. Mele, 1995). Recent empirical work appears to support this view, showing that implementation desires mediate and transform the effects of reasons and motives for acting and influence intentions to act (Perugini & Bagozzi, 2001; Perugini & Conner, 2000). In our model, implementation desires are caused by goal intention and are antecedents to the implementation intention of the decision maker. The decision process characteristics (see below) function at this action-level of decision making as well, contributing to the decision maker’s motivated functioning, and are antecedents to implementation desire.

**The role of goal feasibility**

During the goal selection process, in addition to the goal’s desirability, its feasibility is also taken into consideration (Gollwitzer & Bayer, 1999; Liberman & Trope, 1998; Perugini & Conner, 2000), before an intention to attain it is formed. Goal feasibility refers to the ease or difficulty of attaining the end-state, and includes the consideration of both personal characteristics, such as skill, effort required, etc., as well as environmental contingencies such as the availability of needed resources, the length of the window of opportunity, etc. In our proposed model, goal feasibility is an antecedent to goal intention (see Figure 1). Research on the similar concept of subjective probability by decision theorists has shown that motivation is a function of the interaction between task and goal difficulty (Shapira, 1989). This suggests that the relationship between goal feasibility and goal intention may be more complex than considered by action psychologists, and we acknowledge that our study does not address this possibility, which should be investigated in future research.

**Motivation-mustering role of the decision-making process**

Recent study of effortful decision initiation has shown that the process by which decisions are made plays a significant role in subsequent enactment. More specifically, D&B found that three aspects of the decision
process by which goals and means are chosen include importance, effort investment, and confidence. These decision process (DP) characteristics play a motivation-mustering role, mobilizing effort and facilitating persistence in the subsequent goal-striving process.

DP importance connotes the level of interest or drive aroused by the process of decision making itself, which was shown to transfer to post-decision volitional processes. DP effort investment reflects the investment of resources in the decision process, and musters motivation through enabling a more comprehensive process of selection, and by signaling that the chosen goal or means is significant and worth pursuing. DP confidence raises the decision maker’s perception of self-efficacy with regard to enacting his/her choice through a process of self-persuasion, as well as through the onset of positive emotional states (see Dholakia & Bagozzi, 2002, for a detailed discussion). In a temporal sense, these three DP characteristics represent the starting point in our model of effortful decision making and enactment.

Moreover, the motivation-mustering role of the three DP characteristics is posited to occur through the processes described above during the selection of goals as well as means. As a result, and as noted before, direct paths are posited in our proposed theoretical framework from the three DP characteristics: (importance, effort investment, and confidence) to both goal desire and implementation desire (see Figure 1). This then is one important contribution of the present research: namely, to specify, explain, and test the mediating constructs underlying the direct effects of the decision process uncovered in the D&B study. D&B did not develop a theory and did not test for mediational mechanisms underlying the effects of decision-process antecedents.

The role of anticipated emotions
Recent studies show that effortful decision making engages emotional processes, and elicits forward-looking emotional responses (Bagozzi, Baumgartner, & Pieters, 1998; Perugini & Bagozzi, 2001; Perugini & Conner, 2000; see Bagozzi et al., 2000, for a review). During the goal-selection process in such cases, the appraisal of goals includes an assessment of the prospects of both success on attaining the goal, and failure to do so (Bagozzi et al., 1998), which in turn elicits emotional reactions (Bagozzi et al., 1998; Gleicher et al., 1995). In both cases (i.e. when prospects of success and the possibility of failure are considered), the ensuing emotional reaction is believed to be predicated upon a type of thought process referred to as ‘prefactual appraisals’ (Bagozzi et al., 2000; Gleicher et al., 1995).

Such appraisals lead to the anticipation of discrete emotions, consistent with existing appraisal theories of emotion in the social psychology literature (e.g. Frijda, 1993), which have been called, ‘anticipated emotions,’ because of their prospective orientation (Bagozzi et al., 2000). Anticipated emotions are similar to prospect-based views of emotions (Ortony, Clore, & Collins, 1988) and the notion of the hope of success and the fear of failure as antecedents of approach and avoidance behaviors in achievement contexts (cf. Weiner, 1992). Anticipated emotions represent an important way in which emotions determine what decision makers choose, and how they choose it (Zeelenberg, 1999a, 1999b). Sarin (1992, p. 145) was an early researcher to call for the incorporation of emotions in decision making: ‘Psychological concerns such as anxiety, nervousness, regret, and fear play an enormous role in decision making. These concerns, though unaccounted for in the economics of decision, are real to a person and should be incorporated in the analysis’.

Anticipated emotions have been implicated in decision-making processes in a number of ways. Simonson (1992) examined the role of regret in consumer decision making (see also Richards, van der Pligt, & de Vries, 1996; Zeelenberg, 1999a, 1999b). March and Shapira (1987) note that expectations of anxiety, fear, stimulation, and joy play an important role in managers’ willingness to take risks. Finally, Ordonez, Benson, and Beach (1999) showed that anticipated regret influences the pre-screening process of decision making prior to choice. As implied above, most research to date has focused on negative anticipated emotions (limited mostly to regret) on pre- and post-choice processes.

Based on this discussion, we posit that positive anticipated emotions (emotional reactions to the prospect of successful decision enactment), and negative anticipated emotions (emotional reactions to the prospect of
failing to enact the decision), will both influence goal desire positively (see Figure 1). The more intense the positive and negative anticipated emotions experienced as a result of considering the consequences of goal attainment, the stronger the goal desire. Also, the more effortful a decision is to reach and attain, the greater the motivated functioning of anticipated emotions in this process (Zeelenberg, 1999a). Bagozzi et al. (1998) identified 17 anticipated emotions (7 positive, 10 negative) that are used in unipolar scales to measure positive and negative anticipated emotions in the present research.

The role of attitudes and subjective norms
A large body of research based on the theory of planned behavior (TPB) (see Ajzen, 1996; Eagly & Chaiken, 1993, for reviews) suggests that **attitudes** and **subjective norms** influence decision making. Attitudes are evaluative reactions to performing instrumental actions and are thought to reflect predispositions to respond in a favorable or unfavorable manner to the particular action (Eagly & Chaiken, 1993). They are modeled as functions of a decision maker’s beliefs about the action and his/her evaluations of doing it.

Attitudes are believed to arise through learning, whereby a person acquires a reaction to an action over a period of time, and, once learned, the attitude can be triggered automatically when one is exposed to the action or thinks about it (Fazio, 1995). Attitudes are generally measured by such bipolar semantic differential items as good–bad, harmful–beneficial, rewarding–punishing, and unpleasant–pleasant (Ajzen & Fishbein, 1980, p. 261–262).

It is useful here to contrast the role of attitudes in effortful decision making with that of anticipated emotions. Attitudes reflect reasons for **acting**, and focus on what the decision maker does or can do—in other words, the means to attain goals. Anticipated emotions, on the other hand, focus not on the action, but rather on the **achievement of goals**. In our proposed model, therefore, anticipated emotions are antecedents to goal desire, whereas attitudes influence implementation desire. Second, attitudes function in static ways and automatically, by thoughts about, or exposure to, the relevant means. Anticipated emotions, by contrast, occur as a result of self-regulatory processes and are dynamic responses to real or imagined feedback. As a result, unlike attitudes, which tend to be relatively stable over time, anticipated emotions are contingent on appraisal processes, where expected outcomes are compared to personal standards, and thus are dynamic to the extent that the factors influencing goal achievement change. Finally, reflecting the different content of the constructs and consistent with the practices in the two literatures, attitudes are measured on **bipolar evaluative scales**, whereas anticipated emotions are measured on **unipolar affective scales** (see Method below).

**Subjective norms** the second predictor of behavioral intentions in attitude-theoretic models, capture the interpersonal aspects of behavior, and reflect the impact of directly felt expectations from other people, which are largely based on the need for approval (Eagly & Chaiken, 1993; see also Zeelenberg, 1999a). In the social-influence literature, this response has been referred to as compliance (Kelman, 1974). It is also useful to note that both attitudes and subjective norms constitute **reasons for acting** and thus, by themselves, may not function as motivators to act unless a decision maker accepts them self-consciously as personal motives to act. In other words, attitudes and subjective norms will influence intentions only to the extent that they lead to a desire to act. Implementation desires represent a transformative construct that stimulates action. In our model, therefore, both attitudes and subjective norms determine implementation desire.

**Role of perceived behavioral control**
Perceived behavioral control (PBC) is the final cognitive determinant of behavioral intentions in attitude–theory models, and reflects the decision maker’s sense of control over performing the chosen actions in the
service of decision enactment. As many actions are problematic in the minds of decision makers, either due to perceived personal limitations or because of anticipated environmental hindrances, implementation intentions are often governed by PBC. PBC incorporates aspects of self-regulation and is therefore posited to work in parallel with implementation desires in influencing the implementation intention, in our framework.

Moreover, goal feasibility and PBC are conceptually related in the sense that goals and behaviors are functionally linked (Perugini & Conner, 2000). Assuming that the decision maker chooses behaviors after considering their efficacy in decision enactment, a greater level of perceived efficacy with regard to the goal should lead to a choice of behaviors that have a commensurate level of feasibility and personal control (see Perugini & Conner, 2000, for a detailed discussion). We therefore posit a positive path from goal feasibility to PBC in our proposed model (see Figure 1).

Finally, PBC is a proximal antecedent to plan enactment, in addition to implementation desire. This is consistent with formulations of the role of PBC which suggest that it functions as a regulatory principle in controlling the decision maker’s actions directly, throughout the execution of the chosen plan, and especially when decision enactment involves multiple and temporally dispersed instrumental acts. Here, however, PBC is a proxy for actual control (Ajzen, 1991).

Plan enactment and goal realization

These two constructs represent the actions and outcome of the goal-striving process in our theoretical model. Plan enactment refers to the degree of successful enactment of the chosen plan—i.e. the performance of action where, when, and as planned, by the decision maker. Goal realization is the attainment of the goal chosen by the decision maker on this account, and is temporally the final construct in our causal model.

One may argue for the discriminant validity of plan enactment and goal realization by considering the possibility that the decision maker may modify the plan after the implementation intention has been formed, in response to unfolding events, unforeseen hindrances, environmental contingencies, etc. In this case, even though the chosen plan is modified and thus not enacted successfully, the decision maker may still be able to attain the goal with a greater or lesser degree of success. On the other hand, the plan may be enacted exactly as envisioned, but may not yield the successful realization of the goal for the decision maker, due to inconsideration of some aspects or outcomes, uncontrollable events or contingencies, etc. But for most effortful decisions, we expect a strong positive relationship between plan enactment and goal realization.

To summarize, our proposed model of effortful decision making and enactment provides a comprehensive, theoretical account of the processes through which decisions are reached and chosen goals pursued, with special emphasis on the mechanisms through which the distal decision-making process influences the proximal goal-striving process, and its outcomes. The proposed model thus makes explicit how decision processes result in action and goal attainment, which D&B did not investigate in their study.

METHOD

Participants and procedure

A total of 177 undergraduate students participated in this study in partial fulfillment of a course requirement. The study was completed in two phases. In the first phase, participants completed a survey introduced with the following instructions:

Individuals make many decisions regarding important personal goals. These decisions may pertain to donating to humanitarian causes, losing weight, quitting or reducing smoking, buying products or services, donating blood, etc. In the following pages, we would like to know in great detail about a recent such decision made by you, pertaining to an important personal goal.
Participants were then asked to describe one decision regarding such a goal that they had reached recently that they intended to accomplish within the next two weeks. Participants were asked to exclude decisions pertaining to habitual tasks, such as buying gas or groceries, attending classes, etc. Next, they were instructed to list all of the actions they would need to perform in order to accomplish the described goal. After this, participants completed measures pertaining to the various constructs in the model. After about two and a half weeks, all participants were contacted via E-mail, and completed measures pertaining to plan enactment and goal realization. A total of 169 participants participated in this second wave and constitute the sample. Details of measures are provided next.

**Measures**

**Decision process importance**
Two items were used to measure DP importance. In the first item, participants were asked to indicate their level of agreement or disagreement on a five-point scale to: ‘I considered the decision making process to be of considerable significance to me.’ The second item asked: ‘Please express how important was the decision making process to you, personally,’ and sought response on a seven-point scale anchored with ‘Not very important at all,’ and ‘Very, very important’ at the extremes, and ‘Moderately important’ at the center.

**Decision process effort investment**
Two items were used to measure this construct. The first item sought response to: ‘When making the decision, I gave the different alternatives a great deal of thought,’ and used a Likert-scale. The second item asked: ‘How much input in terms of time did you put into the decision process?’ Responses were recorded on a seven-point scale, anchored with ‘Not very much time at all,’ and ‘Very, very much time’ at the end-points, and ‘A moderate amount of time’ at the center.

**Decision process confidence**
This construct was measured with two items. The first item used a Likert scale and stated, ‘I feel quite comfortable with the decision I have made.’ The second was reverse-scored, asking the participant’s level of agreement with ‘The decision was a hard one to make,’ and also used a Likert scale.

**Attitudes**
Attitudes were assessed by asking the respondent to react to the statement: ‘On the following scales, please express your attitude toward performing the actions necessary to carry out your decision in the next two weeks.’ Six seven-point semantic differential bad–good, wrong–right, foolish–wise, useless–useful, harmful–beneficial, and disadvantageous–advantageous items were used to measure attitudes.

**Subjective norms**
Two seven-point items were used to measure subjective norms, and were introduced with the directive: ‘Please express how strongly most people who are important to you feel you should or should not perform the actions necessary to carry out your decision during the next two weeks.’ The first item stated, ‘Most people who are important to me think 1 (circle appropriate number): should 1 2 3 4 5 6 7 should not perform the actions necessary to carry out my decision during the next two weeks.’ The second item was phrased, ‘Most people who are important to me would (circle appropriate number): approve 1 2 3 4 5 6 7 disapprove of me performing the actions necessary to carry...
out my decision during the next two weeks.’ These items are frequently used to measure subjective norms (Ajzen, 1991) and were reverse-scored relative to items measuring the other constructs.

**Perceived behavioral control**

Perceived behavioral control was measured with a single item asking: ‘How much control do you have over performing the actions necessary to carry out your decision during the next two weeks?’ The end-points of the scale were anchored with ‘no control’ and ‘total control,’ and ‘moderate control’ was the middle category.

**Anticipated emotions**

Anticipated emotions were measured on seven-point items with response alternatives ranging from ‘not at all’ to ‘very much,’ and with ‘moderately’ in the middle, by the use of scales developed by Bagozzi et al. (1998). The scales for positive anticipated emotions were introduced with ‘Please take a moment to consider how you would feel if you were to succeed to achieve the personal goal you mentioned on page one of this questionnaire. Please complete the following scales.’ Respondents were asked to express the felt intensity of each emotion presented using the subjunctive conditional, ‘If I succeed to achieve the personal goal I mentioned on page one of this questionnaire, I will feel:’ The seven positive emotions were excited, delighted, happy, glad, satisfied, proud, and self-assured. Instructions for negative anticipated emotions were: ‘Please take a moment to consider how you would feel if you were not to achieve the personal goal you mentioned on page one of this questionnaire. Please complete the following scales.’ The subjunctive conditional for the negative emotions read, ‘If I do not succeed to achieve the personal goal I mentioned on page one of this questionnaire, I will feel:’ The ten negative emotions measured were angry, frustrated, guilty, ashamed, sad, disappointed, depressed, worried, uncomfortable, and anxious.

**Goal desire**

Three items were used to measure goal desire. The first item sought response to the statement, ‘My desire to reach the goal I have chosen can best be described as:’ and used a seven-point scale with the response alternatives ‘no desire at all,’ ‘very weak desire,’ ‘weak desire,’ ‘moderate desire,’ ‘strong desire,’ ‘very strong desire,’ and ‘very, very strong desire.’ The second item was worded as ‘I feel an urge or need to attain the goal I have chosen.’ A seven-point scale was used, anchored by ‘does not describe me at all’ and ‘describes me very well’ at the extremes, and ‘describes me moderately well’ at the center. The third item read, ‘My overall wish to attain the goal I have chosen can be summarized as follows:’ and provided the response alternatives, ‘no wish at all,’ ‘slight wish,’ ‘moderate wish,’ ‘strong wish,’ and ‘very strong wish.’

**Goal feasibility**

Two items were used to measure this construct. The first item asked, ‘To attain the goal I have chosen is:’ and used a seven-point scale anchored at ‘highly infeasible’ and ‘highly feasible’ at the extremes, and ‘neither infeasible nor feasible’ at the center. The second item was a five-point scale, where participants responded to ‘For me to achieve the goal I have chosen is,’ with ‘very difficult,’ ‘somewhat difficult,’ ‘neither difficult nor easy,’ ‘somewhat easy,’ and ‘very easy,’ response alternatives.

**Goal intention**

Goal intention was measured using a single item, seeking response to ‘I feel certain that I will be able to attain my goal within the next two weeks,’ and used a seven-point scale anchored at ‘does not
describe me at all’ and ‘describes me very well,’ at the end-points and ‘describes me moderately well’ at the center.

Implementation desire
Four items were used to measure implementation (i.e. behavioral) desire and were introduced with the directive, ‘Please express the overall strength of your desire to perform the actions you listed earlier for achieving your chosen goal.’ The first item was, ‘My desire to perform the actions I listed during the next two weeks can best be expressed as:’ and used a seven-point scale similar to the first item for goal desire. The second item sought agreement with ‘I want to perform the actions I listed during the next two weeks’ on a seven-point agree–disagree scale. The third item stated, ‘I feel an urge or need to perform the actions I listed during the next two weeks,’ and used a seven-point scale anchored by ‘does not describe me at all’ and ‘describes me very well’ at the end-points, and ‘describes me moderately well’ at the center. The fourth item sought response to ‘My overall wish to perform the actions I listed during the next two weeks can be summarized as follows’ The response alternatives available were ‘no wish at all,’ ‘slight wish,’ ‘moderate wish,’ ‘strong wish,’ and ‘very strong wish.’

Implementation intention
Implementation intention was measured using two items. The first item stated, ‘The strength of my actual intention to perform the actions I listed to achieve my personal goal in the next two weeks can best be described as:’ A six-point scale has used with response alternatives labeled ‘no intention at all,’ ‘very weak intention,’ ‘weak intention,’ ‘moderately strong intention,’ ‘strong intention,’ ‘very strong intention.’ The second item stated, ‘I intend to perform the actions I listed earlier during the next two weeks’ and had five response alternatives labeled ‘no chance at all,’ ‘highly unlikely,’ ‘neither unlikely nor likely,’ ‘likely,’ ‘highly likely,’ ‘one hundred percent likely.’

Plan enactment
As mentioned above, the plan enactment and goal realization constructs were measured in a follow-up contact via E-mail approximately two and a half weeks after the first survey. A brief description of the participant’s goal prefaced the plan enactment and goal realization measures in the E-mail message to serve as a reminder. Plan enactment was measured using five measures. The first one stated: ‘I was able to do things exactly as I had planned to achieve my goal.’ The second one was, ‘I achieved my goal exactly when I had planned, in the last two weeks.’ The next three measures substituted ‘where,’ ‘how,’ and ‘how long’ for ‘when’ in the second statement. All five measures used seven-point scales anchored with ‘Does not describe me at all’ and ‘Describes me very well’ at the end-points and ‘Describes me moderately well’ at the mid-point.

Goal realization
Two items were used to measure this construct. The first stated, ‘I was able to achieve my goal described above within the last two weeks,’ and used a seven-point agree–disagree scale. The second item used a similar scale and stated ‘I was successful in reaching my decision described above in the last two weeks.’

Tests of hypotheses
Confirmatory factor analysis (CFA) was used to test the adequacy of measurements and verify the discriminant validity of the fifteen latent constructs in the structural model. Structural equation modeling (SEM) was used to test the theoretical framework and its robustness. The LISREL program (Jöreskog & Sörböm, 1999)
was employed for these analyses. The goodness-of-fit of the overall models was assessed with chi-square tests, the root mean square error of approximation (RMSEA), the non-normed fit index (NNFI), and the comparative fit index (CFI). Tests of mediation were performed with chi-square difference tests.

Two indicators were used to operationalize each latent construct in both the CFA and the SEM, except for perceived behavioral control and goal intention, where only single items were available. For latent constructs where more than two items were available, these were combined to produce two indicators according to the so-called partial disaggregation model (Bagozzi & Edwards, 1998). This yielded models with fewer parameters to estimate, and reasonable ratios of cases to parameters, while smoothing out measurement error to a certain extent. All analyses were performed on covariance matrices (Cudeck, 1989).

**Results**

**Reliability**

Table 1 summarizes the means, standard deviations, Cronbach’s alpha reliabilities, and number of measures for the thirteen constructs with multiple measures. In all cases, except for DP confidence, the reliabilities were adequate. DP confidence had a reliability of 0.67, which would most likely make it more difficult to find significant relations with this variable, and thus should err on the conservative side in tests of hypotheses.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Reliability</th>
<th>Number of measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision process importance</td>
<td>9.04</td>
<td>1.99</td>
<td>0.85</td>
<td>2</td>
</tr>
<tr>
<td>Decision process effort investment</td>
<td>7.80</td>
<td>2.38</td>
<td>0.87</td>
<td>2</td>
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<tr>
<td>Decision process confidence</td>
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<td>1.61</td>
<td>0.67</td>
<td>2</td>
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<tr>
<td>Attitude</td>
<td>37.00</td>
<td>4.31</td>
<td>0.85</td>
<td>6</td>
</tr>
<tr>
<td>Subjective norms</td>
<td>12.22</td>
<td>2.50</td>
<td>0.84</td>
<td>2</td>
</tr>
<tr>
<td>Perceived behavioral control</td>
<td>5.77</td>
<td>1.19</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td>Positive anticipated emotions</td>
<td>41.75</td>
<td>8.19</td>
<td>0.93</td>
<td>7</td>
</tr>
<tr>
<td>Negative anticipated emotions</td>
<td>39.66</td>
<td>15.18</td>
<td>0.92</td>
<td>10</td>
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<td>Goal desire</td>
<td>16.58</td>
<td>2.07</td>
<td>0.78</td>
<td>3</td>
</tr>
<tr>
<td>Goal feasibility</td>
<td>8.41</td>
<td>2.95</td>
<td>0.76</td>
<td>2</td>
</tr>
<tr>
<td>Goal intention</td>
<td>0.77</td>
<td>0.66</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td>Implementation desire</td>
<td>21.14</td>
<td>3.18</td>
<td>0.79</td>
<td>4</td>
</tr>
<tr>
<td>Implementation intention</td>
<td>9.75</td>
<td>1.51</td>
<td>0.78</td>
<td>2</td>
</tr>
<tr>
<td>Plan enactment</td>
<td>21.42</td>
<td>9.30</td>
<td>0.95</td>
<td>5</td>
</tr>
<tr>
<td>Goal realization</td>
<td>8.14</td>
<td>2.96</td>
<td>0.77</td>
<td>2</td>
</tr>
</tbody>
</table>

We performed a CFA to test the discriminant validity of the measures of the 15 model constructs. The 15 latent variables had a total of 28 measures. Results showed that the model fit the data well. The goodness-of-fit statistics for the model were as follows: \( \chi^2(247) = 370.18; p \approx 0.00; \) RMSEA = 0.05; NNFI = 0.90; CFI = 0.94. The factor loadings were all significant and high.

Table 2 provides the correlations between the pairs of latent constructs. The analysis shows that while several correlations are statistically significant, all are significantly less than one. This provides evidence of discriminant validity for the measures of all the latent constructs in the model, allowing us to proceed with confidence to the SEM analysis.
Table 2. Correlation matrix for latent constructs in proposed model ($n = 169$)

<table>
<thead>
<tr>
<th></th>
<th>DPIMP</th>
<th>DPEFF</th>
<th>DPCON</th>
<th>ATT</th>
<th>SNORM</th>
<th>PBC</th>
<th>PAE</th>
<th>NAE</th>
<th>GDES</th>
<th>GFEAS</th>
<th>GINT</th>
<th>BDES</th>
<th>IINT</th>
<th>PENACT</th>
<th>REALIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPIMP</td>
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<td>-0.09</td>
<td>0.27*</td>
<td>0.27*</td>
<td>-0.13</td>
<td>0.27*</td>
<td>0.23*</td>
<td>0.34*</td>
<td>0.18</td>
<td>0.14</td>
<td>0.37*</td>
<td>0.26*</td>
<td>0.09</td>
<td>0.02</td>
</tr>
<tr>
<td>DPEFF</td>
<td>0.52*</td>
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<td>0.09</td>
<td>-0.16*</td>
<td>0.16</td>
<td>0.05</td>
<td>0.05</td>
<td>-0.25*</td>
<td>0.25*</td>
<td>0.04</td>
<td>0.03</td>
<td>0.09</td>
<td>0.17</td>
<td>0.15</td>
<td>0.10</td>
</tr>
<tr>
<td>DPCON</td>
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<td>0.09</td>
<td>1</td>
<td>0.59*</td>
<td>0.09</td>
<td>0.08</td>
<td>0.23*</td>
<td>-0.04</td>
<td>0.03</td>
<td>-0.27*</td>
<td>0.18*</td>
<td>-0.27</td>
<td>0.08</td>
<td>0.12</td>
<td>0.10</td>
</tr>
<tr>
<td>ATT</td>
<td>0.27*</td>
<td>-0.16*</td>
<td>0.59*</td>
<td>1</td>
<td>0.59*</td>
<td>0.35*</td>
<td>0.27*</td>
<td>0.08</td>
<td>0.04</td>
<td>0.27*</td>
<td>0.24*</td>
<td>0.27*</td>
<td>0.01</td>
<td>0.27*</td>
<td>0.08</td>
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<tr>
<td>SNORM</td>
<td>0.27*</td>
<td>0.03</td>
<td>-0.04</td>
<td>0.35*</td>
<td>1</td>
<td>0.31</td>
<td>0.19*</td>
<td>0.07</td>
<td>0.08</td>
<td>-0.04</td>
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<td>0.11</td>
<td>0.09</td>
<td>0.12</td>
<td>0.10</td>
</tr>
<tr>
<td>PBC</td>
<td>-0.13</td>
<td>0.16</td>
<td>0.27*</td>
<td>0.27*</td>
<td>0.27*</td>
<td>1</td>
<td>0.01</td>
<td>0.05</td>
<td>-0.04</td>
<td>0.00</td>
<td>0.00</td>
<td>0.09</td>
<td>0.10</td>
<td>0.12</td>
<td>0.08</td>
</tr>
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<td>PAE</td>
<td>0.27*</td>
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<td></td>
</tr>
<tr>
<td>NAE</td>
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<td>0.25*</td>
<td>-0.25*</td>
<td>0.27*</td>
<td>0.08</td>
<td>0.23</td>
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<td>0.01</td>
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<td>GDES</td>
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<td>0.08</td>
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<td>0.05</td>
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<td>GFEAS</td>
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<td>0.05</td>
<td>0.53*</td>
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<td>0.00</td>
<td>0.35*</td>
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<td>0.28*</td>
<td>0.15</td>
<td>0.15</td>
<td>0.10</td>
</tr>
<tr>
<td>GINT</td>
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<td>0.18</td>
<td>0.22*</td>
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<td>0.15</td>
<td>0.05</td>
<td>0.18*</td>
<td>0.05</td>
<td>0.18*</td>
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<td>0.24*</td>
<td>0.05</td>
<td>0.05</td>
<td>0.10</td>
</tr>
<tr>
<td>BDES</td>
<td>0.37*</td>
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<td>0.32*</td>
<td>0.12*</td>
<td>0.19*</td>
<td>0.35*</td>
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<td>0.24*</td>
<td>0.08</td>
<td>0.08</td>
<td>0.10</td>
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<tr>
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<td>0.27*</td>
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<tr>
<td>PENACT</td>
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<td>0.15</td>
<td>0.26*</td>
<td>0.11</td>
<td>0.11</td>
<td>0.09</td>
<td>0.09</td>
<td>0.00</td>
<td>0.21*</td>
<td>0.39*</td>
<td>0.00</td>
<td>0.25*</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>REALIZE</td>
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<td>0.15</td>
<td>0.09</td>
<td>0.05</td>
<td>0.25*</td>
<td>0.31*</td>
<td>0.01</td>
<td>0.25*</td>
<td>0.31*</td>
<td>0.01</td>
</tr>
</tbody>
</table>

*Significant at $\alpha = 0.05$ level of significance.

Note: DPIMP: decision process importance; DPEFF: decision process effort investment; DPCON: decision process confidence; ATT: attitude; SNORM: subjective norms; PBC: perceived behavioral control; PAE: positive anticipated emotions; NAE: negative anticipated emotions; GDES: goal desire; GFEAS: goal feasibility; GINT: goal intention; BDES: implementation desire; IINT: implementation intention; PENACT: plan enactment; REALIZE: goal realization.
The SEM model in Figure 1 fits the data well as evidenced by the goodness-of-fit measures: $\chi^2(302) = 447.60; \ p \approx 0.00; \ RMSEA = 0.04; \ NNFI = 0.91; \ CFI = 0.93$. It can be seen in Figure 2, as hypothesized, that goal desire is significantly influenced by DP importance ($\gamma_{11} = 0.34, \ p < 0.01$), DP confidence ($\gamma_{12} = 0.42, \ p < 0.01$), and by negative anticipated emotions ($\gamma_{15} = 0.24, \ p < 0.01$). In addition, DP effort investment and positive anticipated emotions both have non-significant effects on goal desire (but see Tests of mediation below). About 35 percent of the variance in goal desire is explained by these antecedents. Goal intention in turn is significantly influenced by goal desire ($\gamma_{21} = 0.91, \ p < 0.001$), but not by goal feasibility. Quite a lot of variance in goal intention is explained ($R^2 = 0.82$).

Considering next the determinants of implementation desire, the path from DP effort investment is significant ($\beta_{31} = 0.31, \ p < 0.05$). Attitudes, DP confidence, subjective norms and DP importance do not predict implementation desire significantly. Also, as predicted, the path from goal intention to implementation desire was positive and highly significant ($\beta_{32} = 0.74, \ p < 0.001$), suggesting that the influence of the antecedents—decision process and anticipated emotions—on implementation desire may be channeled through goal desire and goal intention. Figure 2 shows that approximately 81 percent of variance in implementation desires is explained by the antecedents.

Further, and as expected, goal feasibility significantly influences perceived behavioral control ($\gamma_{58} = 0.33, \ p < 0.01$). Implementation intention in turn is influenced significantly by both implementation desire ($\beta_{43} = 0.81, \ p < 0.001$) and perceived behavioral control ($\beta_{45} = 0.15, \ p < 0.05$). Since these coefficients are standardized, we can infer that the impact of implementation desire on implementation intention is about 5.3 times that of perceived behavioral control. These two antecedents explain about 71 percent of the variance in implementation intention.
Considering plan enactment next, we found that whereas implementation intention influences plan enactment significantly ($\beta_{64} = 0.31, p < 0.01$), perceived behavioral control does not. About 10 percent of the variance in the plan enactment construct is explained by these variables. Finally, the path from plan enactment to goal realization is positive and statistically significant, as expected ($\beta_{76} = 0.84, p < 0.001$). Seventy percent of the variance in goal realization is explained. In general, these findings empirically support the proposed theoretical framework.

Comparison to the TPB and the MAP models
To understand the value of our proposed model, it is useful to compare it to established models in the literature. We compared our model to two models that have goal realization as the focal dependent variable: the TPB (Ajzen, 1996; Ajzen & Fishbein, 1980), and the MAP (Heckhausen & Kuhl, 1985).

We fit both models to our data using LISREL. The results are summarized in Figure 3. As can be seen, only about 10 percent of the variance in goal realization is explained by the variables in the TPB, while the MAP variables explain about 11 percent of the variance in goal realization. In comparison, as noted above, our proposed model explained about 70 percent of the variance in goal realization. Moreover, both the TPB and the MAP provide fewer insights into the psychological processes preceding goal realization.

Comparison to the Dholakia and Bagozzi (2002) model
We also fit a variation of the model proposed by D&B and shown in Figure 3. The following changes were made to the D&B model to obtain an adequate fit. First, since we operationalized the goal intention construct...
by measuring it in this research rather than treating it as a second-order factor as done by D&B, both goal desire and goal feasibility were modeled as antecedents of goal intention in the present analysis rather than as its constituents as in D&B. Second, paths were added from goal desire to implementation intention, as well as from the three decision-process characteristics (importance, effort investment, and confidence) to implementation intention. These added paths are shown as dashed lines in Figure 4.

Figure 4 provides the findings for the structural model. Overall, this model provides a satisfactory fit to the data: $\chi^2(66) = 97.68; p \approx 0.00$; RMSEA = 0.05; NNFI = 0.93; CFI = 0.95. Examining the path coefficients from Figure 3, it can be seen that in this case, among exogenous variables, only DP effort investment ($\gamma_{12} = 0.49, p < 0.05$) has a significant path to goal intention. Neither goal desire nor goal feasibility, nor the other two decision-process characteristics, influence goal intention significantly. Interestingly, the path from goal desire to implementation intention is significant ($\gamma_{24} = 0.51, p < 0.001$) but that from goal intention to implementation intention is not. These results suggest that desire may work on consequent constructs through mediating variables, and that some such constructs may have been omitted in the D&B framework, as hypothesized.

Further, while none of the three decision-process characteristics influences implementation intention, both DP effort investment ($\gamma_{32} = 0.78, p < 0.01$) and DP confidence ($\gamma_{12} = 0.73, p < 0.01$), influence goal realization directly, replicating D&B’s main finding. Finally, while implementation intention does not have a significant effect on action ($\beta_{32} = 0.15, \text{ns}$), interestingly, and anomalously, goal intention has a significant negative effect on goal realization ($\beta_{31} = -0.33, p < 0.01$).

While a direct statistical comparison of the D&B model with our proposed model is not possible, since the two models are not fully nested from a structural modeling perspective, findings from this analysis are
noteworthy in several respects. First, while these results replicate and support the D&B thesis that action may be influenced directly by the motivational aspects of the decision-making process itself, they do not provide theoretical support to the mediational role of goal and implementation intentions. Second, fitting the D&B model satisfactorily yielded both atheoretical (e.g. a direct path from goal desire to implementation intention, but no effect of goal intention on implementation intention), and anomalous (e.g. a significant negative path from goal intention to goal realization) results, suggesting that essential intervening constructs may have been omitted from this framework. Finally, and importantly, the D&B model results give little guidance regarding the specific processes that might account for the direct effects that were shown to be significant, i.e. the direct paths from DP effort investment and DP confidence to goal realization. Our proposed model addresses these issues directly, being theoretically more complete, incorporating additional antecedents as well as mediating constructs, and specifying the role of desires as mediating constructs.

**Tests of mediation**

To obtain further support for the validity of the model, rather than using a saturated model where ‘everything is related to everything’ as the baseline, we performed formal tests of mediation for all possible tests.

This was done to check if additional direct paths not included in the model were significant. We conducted a total of 56 tests. As an example, to check if the direct path from DP importance → goal intention was significant, we compare the model described above with a model in which an additional direct path was added from DP importance to goal intention. The difference in chi-square values between the two models ($\chi^2(1) = 1.03$), with a single degree of freedom, is a test of the significance of the added path. Since this difference is not significant ($p > 0.30$), we may conclude that the direct path from DP importance to goal intention is insignificant, and therefore goal desire mediates all of the effects of DP importance on goal intention, as hypothesized.

Of the 56 tests of rival hypotheses of direct effects, only three rival hypotheses were not rejected. The direct paths from PAE → Goal intention, PAE → Implementation desire, and PBC → Goal intention were significantly greater than zero. The other 53 rival hypotheses were rejected, providing additional evidence for the robustness of our proposed model.

**Tests of moderation**

In the analysis conducted so far, we have considered only direct or main effects. One interesting possibility is that certain constructs in the model of Figure 1 operate as moderators, interacting with antecedent constructs to influence consequences. More specifically, the moderating roles of the three decision-process characteristics in influencing two significant direct paths in our model, goal intention → behavioral desire, and behavioral desire → implementation intention, are worth examining. As an example, it is possible that the path between goal intention and behavioral desire is stronger at high levels of DP effort investment relative to low levels.

We conducted a total of six moderation analyses, one for each of the three decision-process characteristics for each of the two paths described above. In each case, the dataset was divided into two at the median value of the particular decision-process characteristic. Multiple sample analyses (using the two resulting covariance matrices) were conducted using LISREL (Jöreskog & Sörböm, 1999).

Table 3 provides a summary of these analyses and the results. Consider the first test presented in Table 3. To test our null hypothesis, that the goal intention → behavioral desire path is equal for both (high and low) levels of DP effort investment, we ran two multiple-sample models. In the first model, all paths were

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1The detailed results are available from the authors upon request.

2We thank a reviewer for suggesting this possibility.
unconstrained between the two groups. This is the ‘no constraints’ model in Table 3. In the second model, the goal intention → behavioral desire path was constrained to be equal for both the high and low levels of DP effort investment. This is the ‘equal paths model’ in Table 3. The difference in chi-square values between the two models ($\chi^2_{(1)} = 0.01$) with a single degree of freedom, provides a test of the equality of the path for the two groups. Since this difference is not significant ($p > 0.90$), we may conclude that the direct path between goal intention and behavioral desire is not significantly different for the high and low levels of DP effort investment. Other tests were conducted similarly. As can be seen from Table 3, we found no evidence of

<table>
<thead>
<tr>
<th>Table 3. Results of multiple-sample moderation analyses</th>
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<tbody>
<tr>
<td><strong>Moderation null hypotheses</strong></td>
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<tr>
<td><strong>Decision Process Effort Investment</strong> ($N_{\text{High-DPEI}} = 70; N_{\text{Low-DPEI}} = 99$)</td>
</tr>
<tr>
<td>Test 1:</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td>Test 2:</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Decision Process Confidence</strong> ($N_{\text{High-DPC}} = 87; N_{\text{Low-DPEI}} = 80$)</td>
</tr>
<tr>
<td>Test 3:</td>
</tr>
<tr>
<td></td>
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<td>Test 4:</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Decision Process Importance</strong> ($N_{\text{High-DPI}} = 82; N_{\text{Low-DPEI}} = 86$)</td>
</tr>
<tr>
<td>Test 5:</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Test 6:</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

*Sample size; **Unstandardized coefficient; \(^{1}\)Standard error.
moderating effects of decision-process characteristics in any of the six cases considered. These results lend increased confidence to our proposed theoretical framework.

GENERAL DISCUSSION

Our primary objective in this research was to develop a detailed account of the mechanisms through which the decision process influences goal striving and the enactment of effortful decisions. To do this, we drew upon and synthesized recent research from different literatures to arrive at a comprehensive model of goal striving. Such an account is necessarily a motivational one, emphasizing and elaborating on two key transformations. The first one addresses the reasons for choosing the goal and transforms these into goal intentions imbued with commitment and determination to attain the goal. We termed this a goal desire, consistent with recent research (Perugini & Conner, 2000). The second one focuses on the reasons for acting and transforms these into implementation intentions, which in turn lead to commensurate actions and decision enactment. We termed this an implementation (i.e. behavioral) desire.

The three decision-process characteristics (i.e. decision process importance, effort investment, and confidence) were found to influence desires at both these levels of choice in the decision-making process. The results showed that decisions regarding goals reached confidently and deemed important, imbued the chosen goal with desire for our participants, while decisions regarding courses of action reached effortfully influenced their implementation desire, both thus impelling the decision maker toward decision enactment. This research supports the D&B view that the decision-making process of the individual has a motivation-mustering function, but qualifies the D&B framework by showing that this motivation is channeled through the goal and implementation desire constructs, for the two levels of decision making.

In this research, we implicitly focused on consonant or self-concordant goals (Sheldon & Elliot, 1999)—i.e. those that are harmonious with other related and unrelated goals, resources, and situational contingencies of the decision maker, and are pursued because of intrinsic motivation. It is useful to note that other goals for which effortful decisions are made may be dissonant, i.e. they may contradict, and be incompatible with other salient goals, resources, and situational contingencies. While much of the theoretical framework presented here is likely to apply to such decisions, one additional issue—that of self-regulation, defined as specific strategies of altering one’s own state and responses (Baumeister, Heatherton, & Tice, 1994)—may need to be considered and incorporated into our theoretical account. Following from our theoretical framework, we expect that the decision-making process will influence the strength and efficacy of self-regulatory success and persistence in the maintenance of such dissonant goals, but this issue warrants further research attention.

In the case of implementation desire, too, a distinction may be made between its two forms: appetitive and volitive. With appetitive desire (i.e. that associated with such biological urges as hunger, thirst, and sex, and expressed in the form, ‘P has a desire to eat ice-cream’), reasons and motives for acting serve as catalysts to release or free-up hidden or latent desires. Of course, appetitive desires may also initiate decision making or directly stimulate action and are especially evident in impulsive acts and lack of self-control (e.g. Baumeister et al., 1994). In the case of volitive desires (i.e. those operating as transitive verbs in sentences of the form ‘P desires to go to the mall after work today’), in contrast, the reasons and motives for acting are deliberatively processed and taken into account so as to form a self-commitment to act.

In this research, we focused more on these latter volitive types of desires, which are also consistent with how goal desire operates. But it is also likely that appetitive desires play some role, either by themselves or in tandem with volitive desires, for some types of effortful decisions. The role of cognitive and anticipated emotional processes may be minimized in such cases, and the enactment of the decision may be a function of the intensity of the appetitive desire experienced by the decision maker (Bagozzi, 2000). Future research should examine this issue.
Further, research has shown that emotions have two functions in goal-directed behavior (Bagozzi et al., 2000). The first function is to provide feedback about the extent of goal attainment—i.e. how much progress has been made, and whether it is satisfactory—and is referred to as the *informational function*. The second function of emotions is to direct and energize goal-directed behavior following choice, which has been called the *motivational function*. Emotions can function in both ways when plans and instrumental actions are thwarted.

We studied one motivational function of emotions in effortful decision making: the operation of anticipated emotions which engender volitional processes concerned with the formation of goal intentions, decisions about how much effort to expend on goal pursuit, and planning and monitoring along the way. But the other motivational and informational functions of emotions in the choice and enactment of effortful decisions not considered here warrant future attention.

While this and other studies (e.g. Bagozzi et al., 1998; Perugini & Bagozzi, 2001) have shown that anticipated emotions—construed as expected emotions (i.e. emotions expected by the decision maker)—affect decision making, the mechanism of influence is still unclear. One possibility is that these emotions arise in response to a decision process wherein the decision maker compares the prospect of decision enactment and the possibility of failing to do so with his/her personal standards or reference values. Bagozzi (1992) refers to such comparisons as outcome-desire pursuits and outcome-desire avoidances, respectively. Future research is also needed to better understand whether anticipated emotions function differently for different types of decisions—such as those which are consonant versus those that are dissonant, or those that are discrepancy-reducing versus those that are discrepancy-enlarging (e.g. Carver et al., 1996). The timing of anticipated emotional experience by the decision maker, i.e. when they are experienced in the decision-making process, also warrants research attention. Research on mental simulations (e.g. Kahneman & Tversky, 1982) has the potential to inform this issue.

Most of the existing research investigating emotional influences on goal-directed behavior has focused on the goal-striving stage (see Bagozzi et al., 2000, for a review). However, emotions may be influential during initial decision making in several ways. First, an emotional behavior may be the immediate goal object inspiring behavior, in the sense that the emotion expresses what the decision maker is trying to achieve. Examples of such emotional goals include ‘to enjoy my vacation and be happy,’ ‘to avoid stress during shopping,’ etc. In such cases, the goal intention may be formulated in the context of experiencing a particular emotional state.

Second, emotions may influence the alternatives chosen by the decision maker, and the level of the decision-process characteristics in our model. Some recent research speaks to this issue, showing that specific emotional states have predictable, but distinct, influences on decision making. Using a mood-based framework, Raghunathan and Pham (1999) found that sad individuals were biased in favor of high-risk/high-reward options, whereas anxious decision makers tended to prefer low-risk/low-reward options from similar choice sets. These differential preferences may translate to different levels of confidence, perceptions of effort invested, and importance of the decision process, and influence desire levels and goal striving to different extents.

Third, emotional states may provide the impetus for engaging in goal striving and for enacting the decision. This was supported by the significant direct influence of negative anticipated emotions on goal desire in our model of effortful decision making and enactment. Consistent with our finding, studies conducted using a means–end chain perspective often find that emotional states (e.g. feeling good about oneself, worrying less, being healthy) are important motivators of action (Bagozzi & Dholakia, 1999).

The consideration of decision-process characteristics represents a first step in understanding how decision-making processes influence goal striving. In his essay pertaining to consumption, Bagozzi (2000) summarizes the needed research as follows: ‘Work is needed into how to incorporate choice processes with respect to alternative goals, products/services, and means for implementing decisions’ (p. 106). Considering the motivational impact of specific choice strategies on subsequent goal striving is a logical next step to this research.
Finally, it is also useful to briefly comment on the scope of our model. The model of effortful decision making and enactment we proposed here is applicable to a wide variety of practical decision-making domains: organizational decision making such as the identification and hiring of promising employees, managerial decision making such as raising market shares or increasing sales, medical decision making such as the diagnosis and treatment of complex conditions, consumer decision making such as saving for and purchasing a house, health decision making such as losing weight or quitting smoking, and so forth. In general, it applies to decisions that are novel and of significance to the decision maker, where there is some gap between reaching the decision and implementing it, and where decision enactment is effortful, implicating motivational processes of the decision maker. In contrast, this theoretical framework is less relevant for routine or habitual decisions, or decisions where enactment follows immediately or is straightforward.

We also wish to emphasize that our study is a longitudinal survey and cannot claim to provide direct evidence of mental processes going on in the minds of individual respondents; controlled experiments would be needed to address these issues. Nevertheless, the proposed model has the potential to inform the study of decision making in effortful domains, and to provide suggestions for bringing about behavioral change and influencing goal outcomes.

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