

Letting Good Opportunities Pass Us By: Examining the Role of Mind-Set during Goal Pursuit

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It is generally accepted that forming an implementation intention promotes goal pursuit and achievement. Forming an implementation intention encourages people to develop a plan, to prepare for events that allow for the execution of the plan, and to efficiently respond to these opportunities. Yet, forming an implementation intention may not be universally beneficial. An implementation intention may encourage the use of means that are part of the plan but may discourage the use of efficacious means that are not part of the plan. Four experiments show that forming an implementation intention decreases the likelihood of responding to goal-directed, out-of-plan behaviors when a person is in a concrete mind-set. Limitations, implications, and directions for future research are discussed.

Consider the following scenario: a blood test reveals that you have high cholesterol, so your doctor recommends medication and a change in diet. While investigating dietary changes, you learn that eggs, which you consume daily, are particularly high in cholesterol. Thus, you create a plan to lower your cholesterol that involves taking your medication daily and eating only two eggs per week. You follow this plan religiously. Now imagine that new research is published suggesting that exercise is another, perhaps even more effective, way to lower cholesterol. How will the fact that you already have a plan to lower your cholesterol influence your propensity to add exercise into your life? In comparison to someone who has not yet formed a cholesterol-lowering plan, are you more or less likely to add an exercise regimen?

It is not yet known how forming a plan, or an implementation intention (e.g., to eat fewer eggs), might influence

a consumer's evaluation of goal consistent, out-of-plan behaviors (e.g., exercising). On the one hand, forming an implementation intention makes a goal more accessible (Gollwitzer 1999). Accessible goals are more likely to be pursued (Bargh et al. 2001), and means associated with these goals are more likely to be valued (Chartrand et al. 2008). Thus, implementation intentions could enhance the value of all means (in- or out-of-plan means) that are relevant to goal pursuit. On the other hand, an implementation intention involves mentally simulating the steps that must be taken to achieve a goal (Gollwitzer 1993, 1999). Specifying when, where, and how one will achieve a goal creates a readiness to respond to specific behavioral opportunities (Gollwitzer 1999). Yet, this readiness to respond to specific behavioral opportunities may encourage a narrow-minded focus that leads to less appreciation for out-of-plan opportunities to achieve a goal. Thus, there is reason to think that forming implementation intentions may increase or decrease the evaluation of goal consistent, out-of-plan behaviors.

One factor that may moderate the influence of implementation intentions on the evaluation of goal consistent, out-of-plan behaviors is the concreteness versus abstractness of thought. To appreciate this hypothesis, consider three well-established findings. First, the formation of an implementation intention often results in a specific plan (Gollwitzer 1993, 1999). Second, adopting a concrete mind-set encourages a cognitive frame that is oriented toward the detail of an action (Vallacher and Wegner 1987, 1989). Thus, adopting a concrete mind-set may reinforce commitment to

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the means specified in an implemental plan and may make goal consistent, out-of-plan behaviors seem less viable. Third, a myopic focus on a specific means can be mitigated by encouraging a person to adopt a more abstract mind-set (Trope, Liberman, and Wakslak 2007; Vallacher and Wegner 1987, 1989). Thus, an abstract mind-set may refocus thinking on the goal that motivated the formation of the implemental plan and may make goal consistent, out-of-plan behaviors seem once again viable.

These hypotheses are investigated using the common consumer goal of saving money. Experiment 1 investigates how concrete and abstract mind-sets moderate the influence of an implemental plan to save money on a consumer's willingness to resist an impulse purchase (and thus save money in an unanticipated way). Experiments 2a and 2b generalize this finding to a wide variety of money-saving opportunities and provide evidence that helps discredit alternative hypotheses. Experiments 3 and 4 investigate methods of instantiating concrete and abstract mind-sets that have marketing relevance: Experiment 3 asks people to judge out-of-plan behaviors that can be pursued in the near future (i.e., concrete mind-set) or the distant future (i.e., abstract mind-set; Trope and Liberman 2000). Finally, experiment 4 uses a prevention (i.e., a concrete mind-set) or promotion focus (i.e., an abstract mind-set) to alter participants' mind-sets (Zhu and Meyers-Levy 2007).

THEORETICAL BACKGROUND

Goals and Means Representation

Goals are cognitively represented knowledge structures (Baumgartner and Pieters 2008; Kruglanski et al. 2002), and, more specifically, goals are desirable states (e.g., status, achievement, entertainment) that people wish to experience. As such, the positive affect associated with the goal representation becomes the motivation that supports goal pursuit (Bargh et al. 2001; Custers and Aarts 2005). Moreover, goals are arranged in a hierarchy consisting of superordinate goals, goals, and means (Baumgartner and Pieters 2008). Research on goal representation suggests that facilitative links exist between vertically connected elements in the hierarchy, such as between a goal and its means, whereas inhibitory links exist between lateral elements, such as between competing goals or competing means (Kruglanski et al. 2002).

The facilitatory and inhibitory links between goals and means help to explain four findings in the literature on goal pursuit and achievement. First, goal activation increases the value of means linked to that goal. For example, priming an enjoyment goal increases the perceived value of fun restaurants, whereas priming a status goal increases the perceived value of elegant restaurants (Laran, Janiszewski, and Cunha 2008). Second, means activation increases the perceived value of a means, assuming the means is instrumental to the pursuit of active goals. For example, Karremans, Stroebe, and Claus (2006) find that subliminally priming Lipton ice tea increases preference for the tea among thirsty

consumers. Third, means activation reduces the relative value of competing, goal-relevant means. For example, Berger and Fitzsimons (2008) show that using an orange (green) pen to fill out a survey about food preferences increases the desire for orange (green) and decreases the relative preference for green (orange) food items. Finally, means usage reinforces associations between a goal and a means and between a means and a goal (e.g., Aarts and Dijksterhuis 2000).

Implementation Intention Formation

The activation of a goal intention is often insufficient for successful goal attainment; consequently, much research has examined factors that promote goal achievement. One important stream of research has shown that people who create implementation intentions typically have higher goal attainment rates than those who act on the basis of mere goal intentions (Gollwitzer 1999; Gollwitzer, Bayer, and McCulloch 2005; Gollwitzer and Sheeran 2006). Implementation intentions are specific plans (e.g., "I will take my Lipitor when I brush my teeth") that are subservient to a goal intention (e.g., "I will try to reduce my cholesterol"). Implementation intentions facilitate goal pursuit by establishing or reinforcing the associative links between a situational cue (e.g., brushing teeth), a goal (e.g., reducing cholesterol), and a specific means (e.g., taking Lipitor; Gollwitzer and Sheeran 2006). When people form an implementation intention, they rehearse an "if-then plan that specifies a behavior to be performed in response to an anticipated situational cue" (Parks-Stamm, Gollwitzer, and Oettingen 2007, 249). As a consequence of this rehearsal, the specified situational cue promotes the execution of the goal-directed means specified in the plan.

The benefits of implemental plans have typically been shown in situations where only one means was available and/or appropriate for achieving the goal (e.g., perform breast self-examinations to detect cancer; Orbell, Hodgkins, and Sheeran 1997; also see Gollwitzer and Sheeran 2006). However, less is known about the impact of implementation intentions when there are multiple means available for achieving a goal (equifinality). Equifinal goals are usually more general (e.g., save for the future, be healthier, enjoy life), hence, there are many means that support successful goal pursuit. For equifinal goals, an implemental plan that focuses on a single means has the potential to increase the likelihood that the in-plan means is pursued but decrease the likelihood that the out-of-plans means are pursued. This is because an implemental plan creates a higher level of commitment to a specific means. Once an individual commits him or herself to a specific means, several processes, including dissonance reduction (Festinger 1957) and the systematic devaluation of options unrelated to the current need (Brendl, Markman, and Messner 2003), may lead people to view other means as less instrumental and valuable. The individual may also move into an implemental, instead of deliberative, mind-set, which may make him or her less open to new information (Gollwitzer, Fujita, and Oettingen 2004).

Thus, as the commitment to a specific means increases, the appeal of other viable means may decrease.

There are two lines of research that are consistent with the hypothesis that implementation intentions may discourage the pursuit of goal-relevant, out-of-plan means. First, Luchins and Luchins (1959) found that once participants learned a complex rule for solving an initial series of problems, they tended to apply this rule to later problems even though they had an alternative, simpler solution available. People seemed to ignore information that was not a part of a rule they had already learned or a part of their implemental plan. As another example, Parks-Stamm et al. (2007) asked participants to listen to a story and to type the first letter of any five-letter word they heard. The story contained 45 five-letter words, twenty-three of which were the words “Laura” or “mouse.” One-half of the participants were forewarned of the “Laura” and “mouse” targets and the other half were not. The participants who were aware of the “Laura”/“mouse” target words were asked to form an implementation intention by making a plan to immediately press “L” if they heard “Laura” or “M” if they heard “mouse.” Parks-Stamm et al. (2007) found that forming an implementation intention led to greater identification of “Laura” and “mouse” words but to lower identification of five-letter targets that were not “Laura” or “mouse.” The results suggest that individuals may not notice alternative opportunities to achieve their goals if they are focused on the opportunities specified in their implemental plan. Furthermore, even if individuals notice such alternative opportunities, they may be unprepared to take advantage of them.

Second, forming an implementation intention and engaging in goal pursuit leads to narrower, and increasingly selective, information processing (Gollwitzer 2003; Gollwitzer and Sheeran 2009). After forming an implementation intention, people tend to process information related to the goal more selectively and to disregard information they consider to be irrelevant or peripheral to the goal or the implementation of the plan (Gollwitzer et al. 2004; Gollwitzer and Sheeran 2009). They also become less concerned with information related to the desirability or feasibility of a goal and, when provided with such information, often distort it to support their existing goal pursuit (Gollwitzer and Kinney 1989; Harmon-Jones and Harmon-Jones 2002). These findings suggest that an implemental plan can encourage people to overlook or devalue other viable, out-of-plan means to goal achievement.

Concrete and Abstract Mind-Sets

The influence of an implemental plan on the evaluation of out-of-plan means may be moderated by a person’s mind-set at the time the means are evaluated. Vallacher and Wegner (1987, 1989) have observed that goal pursuit often involves one of two mind-sets. A concrete mind-set is a cognitive orientation that encourages a focus on the details of executing behaviors. A concrete mind-set should sustain focus on executing the means specified in the implemental plan and,

thus, lead to a lack of appreciation for appropriate out-of-plan means.

H1: If an individual is in a concrete mind-set, then having formed (vs. not having formed) an implementation intention should decrease the perceived value of goal-consistent, out-of-plan behaviors.

However, behavior might be strikingly different when people adopt an abstract mind-set. An abstract mind-set is a cognitive orientation toward the general focus or purpose of an action. Abstract mind-sets encourage people to adopt a broader, more general approach to the control of behavior (Fujita et al. 2006). Although a concrete mind-set might overly focus people on the details of their chosen plans, there is evidence that people in an abstract (as opposed to a concrete) mind-set encourage others to consider broader and more realistic approaches, perhaps because an abstract mind-set orients people toward the purpose, as opposed to the process, of goal achievement (Freitas, Gollwitzer, and Trope 2004). Furthermore, although Rabinovich et al. (2009) found that goal-related behavior suffered when there was a specific goal and a specific (i.e., concrete) mind-set, combining a specific goal with a general (i.e., abstract) mind-set facilitated goal-related behavior.

Thus, there is reason to think that an abstract mind-set may be able to mitigate the detrimental effect of implementation intentions (which may manifest in the concrete mind-set) by refocusing the individual at the goal level in the hierarchy and by thus removing the myopic focus that leads to the devaluation of out-of-plan means.

H2a: An abstract mind-set will mitigate the detrimental effects (observed under a concrete mind-set) of implementation intentions on the perceived value of goal-consistent, out-of-plan behaviors.

Finally, adopting an abstract mind-set may not always be beneficial to goal pursuit (e.g., Herzstein and Becker 2010). In particular, adopting an abstract mind-set may be counterproductive if one has not formed an implementation intention. When a person has not formed an implementation intention, adopting an abstract mind-set may make a person more deliberative and less focused on the goal, as he may still be undecided about whether or how to pursue the goal (Gollwitzer 1990). Indeed, Rabinovich et al. (2009) found that donation behavior was lower when participants focused only on an abstract goal to donate instead of on an abstract goal combined with the more specific ways of achieving it. Furthermore, Herzstein and Becker (2010) show that adopting an abstract, as compared to a concrete, mind-set results in less goal-directed behavior, and Locke and Latham (1990, 2002) argue that when a person focuses on a higher level in the goal hierarchy, the achievement of lower level goals is compromised. Thus, an abstract (instead of concrete) mind-set may lessen the appeal of means associated with a

specific goal when no implementation intention has been formed.

H2b: If no implementation intention has been formed, an abstract mind-set will decrease the perceived value of goal-consistent behaviors compared to a concrete mind-set.

EXPERIMENT 1

Experiment 1 was designed as an initial test of hypotheses 1 and 2. In the experiment, participants were asked to activate the goal to save money. Then, half of the participants formed an implemental plan for saving money. Next, participants were put into a concrete or abstract mind-set. Subsequently, participants had an unexpected opportunity to purchase candy. Declining the purchase opportunity would have been consistent with the money-saving goal but was unlikely to have been a part of an implemental plan. We expected that participants' mind-sets (concrete or abstract) would moderate the influence of having formed implementation intentions on participants' decisions to pursue or decline the candy purchase. Forming an implemental plan (vs. not) should paradoxically increase participants' likelihood of making this goal-incongruent purchase when in a concrete mind-set (hypothesis 1), but it should not have this detrimental effect in an abstract mind-set (hypothesis 2a). In the absence of an implemental plan, adopting an abstract, instead of a concrete, mind-set should increase the likelihood of making this unplanned purchase (hypothesis 2b).

Method

Participants. One hundred twenty-seven undergraduate business students participated in the experiment in exchange for \$3.00 and extra course credit.

Design. This study employed a 2 (form implementation intentions: no, yes) \times 2 (mind-set: concrete, abstract) design.

Procedure. The procedure involved a series of five ostensibly unrelated studies that were presented using personal computers and Authorware software. After participants were seated in individual carrels, the first study was orally introduced. The introduction involved a guise that allowed us to ensure that all participants would have money. Participants were told that Target, a national retailer, was sponsoring the first study and that Target had provided compensation of \$3.00. Participants were handed \$3.00 and asked to put the money in their purse or wallet. To maintain the credibility of the cover story, the participants answered computer-administered questions about their shopping habits at Target and indicated what they liked and disliked about the retailer. Participants were then informed that participation in the remaining studies would allow them to earn extra course credit.

The remainder of the procedure was administered using personal computers. Study 2 was used to invoke a goal intention and to administer the implementation intention ma-

nipulation. The study was introduced with a different title, a differently colored background, and a different layout of the information and response screens relative to study 1. Participants were informed that prior research at the university had concluded that saving money is very important to university students and that the goal of this study was to document the types of things students save for and how students save. First, all participants were encouraged to form a goal intention to save money. Participants were told:

Consciously or unconsciously, saving money is a goal that most people want to pursue. Most students realize the importance of saving money early on in their lives. Please discuss why saving money is important to you and what you would like to save up for in the upcoming month or so.

Next, approximately half of the participants formed an implementation intention by discussing a means they would use in the upcoming month to save money. Via the following instructions, they were asked to form a realistic plan that they felt committed to and that they would implement:

Please form a detailed plan of how you will focus on a method to save money in the upcoming month. In the space below, list the method that you will use to save money. Form a very detailed plan of exactly what you will do to take advantage of this method. It should include a specific situation when you will execute specific actions to help you accomplish your savings goal. This should be a plan that you are committed to and that you really plan to implement! Take your time. You have several minutes to really think about the intricate details and write out this plan.

The participants who did not form an implementation intention were given a task that required them to expend as much effort as those in the implementation intention condition. Participants were told that we were interested in how individuals process different letters and words. Participants were asked to list as many words as they could that had the letter "d" in the middle (Laran et al. 2008). In particular, they saw the following set of instructions:

At this time, we wish to examine how individuals process different letters and words. Please think about words that have the letter "d" somewhere in the middle of the word. Thus, the letter "d" would not occur in the beginning or at the end of a word. Please list as many such words as you can think of within several minutes.

All participants were required to spend at least 1 minute performing the assigned tasks, although they could take as much time as they felt was necessary.

Study 3 presented participants with an unrelated filler task lasting approximately 5 minutes, during which all participants evaluated profiles of potential online daters.

Study 4 contained the mind-set manipulation. The study was introduced as investigating thoughts relating to saving money, and it had a different background and layout from

each of the prior studies in the session. The instructions were written to induce a concrete mind-set for half of the participants and an abstract mind-set for the other half (see Freitas et al. 2004). Specifically, the concrete (abstract) mind-set manipulation informed participants that we are interested in how (why) they save money. The participants were asked to write in one or two sentences how (why) they save money. Then, participants were shown the sentences they had written and were asked how (why) they would do that. This recursive process was then repeated one more time. The participants were given as much time as they needed to enter their responses.

Study 5, titled “Marketing Lab Pretest of Student Choices,” contained the key dependent variable. Participants were told that the marketing department was interested in selling snacks to participants during the experiments and that the department was pretesting the type of snacks, if any, students would like. Participants were presented with four options: Snickers candy bars, Chips Ahoy! chocolate chip cookies, Pepperidge Farm Goldfish crackers, or Nature Valley granola bars. Participants were told that they could purchase as many snacks as they wished at a cost of \$.75 each but that they were not obligated to purchase a snack. Participants indicated, on the computer, how many of each snack they wanted. Because participants were given \$3.00 at the outset of the study, each participant had at least sufficient funds to purchase from zero to four snacks, thus creating a 5-point ratio scale measuring impulse purchasing. After participants made their selections, the experimenter delivered the snacks and collected the money while participants completed an unrelated filler questionnaire. At the end of the study, participants were asked how much they liked the type of snacks that were offered in the session on a scale ranging from 1 (“do not like them at all”) to 9 (“like them very much”). The experiment ended by asking participants to list their ideas about the purpose of the study.

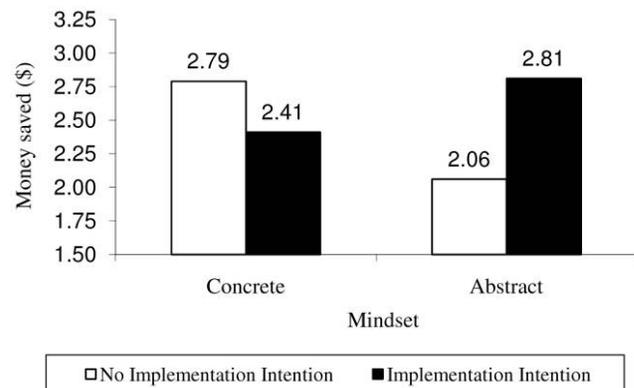
Results

Two preliminary analyses were performed. The first analysis ensured that “avoiding impulse purchases” was an out-of-plan behavior. We reviewed the means listed by participants in the implementation-intention condition. No participant mentioned decreasing impulse purchasing. Instead, participants mainly focused on limiting dining out, limiting drinking out, and ordering cheaper items at restaurants. A second analysis found that no participant guessed the purpose of the experiment.

Figure 1 displays the difference between \$3.00 and the amount spent on candy (i.e., the retained savings). An ANOVA revealed a significant interaction of implementation intention and mind-set on participants’ snack purchasing ($F(1, 123) = 17.88, p < .01$). Consistent with hypothesis 1, participants in a concrete mind-set were less likely to save money when they had previously formed an implementation intention ($M_{Int} = \$2.41$ saved) than when they had not ($M_{NoInt} = \$2.79$ saved; $F(1, 123) = 4.14, p = .04$). Consistent with hypothesis 2a, an abstract mind-set

FIGURE 1

EXPERIMENT 1: THE EFFECT OF FORMING AN IMPLEMENTATION INTENTION ON THE AMOUNT OF MONEY SAVED IS MODERATED BY THE ABSTRACTNESS OF THOUGHT



mitigated the detrimental influence of forming an implementation intention on saving ($M_{Con} = \$2.41$ saved, $M_{Abs} = \$2.81$ saved; $F(1, 123) = 4.46, p = .04$). Consistent with hypothesis 2b, an abstract mind-set reduced the ability to save when people had not formed an implementation intention ($M_{Con} = \$2.79$ saved, $M_{Abs} = \$2.06$ saved; $F(1, 123) = 14.92, p < .001$). Participants’ ratings of the snacks were not influenced by the experimental manipulations (all $p > .6$).

Discussion

Although implementation intentions are generally thought of as beneficial, forming an implementation intention discouraged people in a concrete mind-set from taking advantage of goal-consistent, out-of-plan means. People in a concrete mind-set who had previously formed an implementation intention were more likely to make an impulse purchase, and less likely to save their money, than those who had not formed an implementation intention. Being in an abstract mind-set mitigated the detrimental influence of forming an implementation intention: among those in an abstract mind-set, people who had formed an implementation intention were less likely to make an impulse purchase, and more likely to save their money, than those without such an intention.

The most intriguing result of experiment 1 was that, in contrast to years of research suggesting that implementation intentions promote goal achievement, forming an implementation intention limited goal-directed behavior when people were thinking concretely. There are two reasons why this may have occurred. First, forming an implementation intention and then adopting a concrete mind-set may lead individuals to be so plan focused that they do not even notice other means that could further their goal progress. This explanation is consistent with the well-established narrowing of attention that accompanies goal pursuit (Gollwitzer et al. 2004). Second, forming an implementation intention may

lead individuals to feel such a strong sense of commitment to their specified means that they devalue out-of-plan behaviors even when they notice them. This explanation is consistent with goal theory, but it has not been demonstrated in the context of implementation intentions. Experiment 2 provides evidence for the second of these two explanations.

EXPERIMENTS 2A AND 2B

The goal of experiment 2 was to further understand why forming an implementation intention leads individuals to be less likely to take advantage of goal-consistent, out-of-plan means when in a concrete mind-set. Similar to experiment 1, the experiment investigated a savings goal. Also similar to experiment 1, the key independent variables were the formation of an implementation intention and the participant's mind-set. Dissimilar to experiment 1, the critical dependent measure was the expressed likelihood of taking advantage of eight out-of-plan means. All eight out-of-plan means were efficacious for the savings goal.

Asking participants to directly respond to eight money-saving opportunities allowed us to assess the extent to which means devaluation contributes to the failure to take advantage of goal-consistent, out-of-plan opportunities when in a concrete mind-set. Goal-systems theory (e.g., Kruglanski et al. 2002), cognitive dissonance theory (Festinger 1957), and the devaluation effect (Brendl et al. 2003) each suggest that once individuals commit themselves to an option, they will consider other options less instrumental and valuable. If these processes contribute to the decreased likelihood of taking advantage of efficacious means, that decreased likelihood should still be observed even when there is no ambiguity about whether a means is relevant to saving money and even when the means cannot be overlooked (i.e., when the means are explicitly presented as ways to save).

Experiment 2 also addressed a potential problem in the procedure of experiment 1. In experiment 1, mind-set was manipulated by asking participants "why" or "how" questions about a savings goal. This created the possibility that the mind-set manipulation may have altered commitment to the savings goal. Experiment 2 addressed this concern in two ways. First, commitment to the savings goal was directly measured. Second, experiment 2b used a mind-set manipulation that was unrelated to the savings goal.

Method for Experiments 2a and 2b

Participants. Two hundred ten (experiment 2a) and two hundred four (experiment 2b) undergraduate business students participated in exchange for extra credit.

Design. The studies employed a 2 (form implementation intentions: no, yes) \times 2 (mind-set: concrete, abstract) \times 2 (commitment measurement order: before key dependent measures, after key dependent measures) \times 8 (specific means-rated) design, with the latter factor varying within subjects. The study also included a control group that neither

formed a goal intention, formed an implementation intention, nor experienced a mind-set manipulation.

Procedure. The procedure was similar to that of experiment 1. First, experimental condition participants were encouraged to adopt a goal intention to save money (using the same instructions as in experiment 1). Second, half of these participants were asked to form an implementation intention (via the same instructions as in experiment 1), whereas the other half were not. Third, the mind-set manipulation was administered. Experiment 2a utilized the same how versus why questions as in experiment 1. Experiment 2b utilized a mind-set manipulation that was unrelated to the goal of saving money: participants were asked to specify how or why they earn good grades. As in experiment 1, the mind-set manipulation involved a three-step recursive process.

The critical dependent measure was the likelihood of taking advantage of eight money-saving means in the upcoming month. Participants rated each means on a scale ranging from 1 ("not at all likely to use this method") to 9 ("very likely to use this method"). These goal-consistent, out-of-plan means were selected to include means that exhibited a wide range of typicality. Specifically, pretest participants were asked to rate the likelihood that they would take advantage of a variety of money-saving means as well as to list novel means that they or their friends could use to save money. Eight means, ranging from common to novel, were selected (see the appendix). The means were not conflicting, so the participants should be willing to consider as many means as possible to save money.

The procedure also included two measures of goal commitment. The first measure asked, "how committed do you feel to the goal of saving money?" (1 = "not committed at all" to 9 = "very committed"). The second measure asked, "how committed did you feel to the goal of saving money before today's session?" (1 = "not committed at all" to 9 = "very committed"). These questions were administered immediately before or immediately after participants rated the eight out-of-plan means.

The experimental session ended with a funneled debriefing. Participants were asked about (1) the purpose of the study (open-ended), (2) the purpose of rating the eight out-of-plan means (open-ended), (3) how the experimental tasks related to each other (open-ended), and (4) how the experimental manipulations might have influenced their responses (open-ended and forced response). Participants who formed an implementation intention were asked if they thought planning made them more likely or less likely to take advantage of the means, and participants were asked if they thought the mind-set activity made them more likely or less likely to take advantage of the means.

Control group participants, who did not form a goal or implementation intention or experience a mind-set manipulation, completed all critical dependent measures and the applicable funneled debriefing questions.

Results

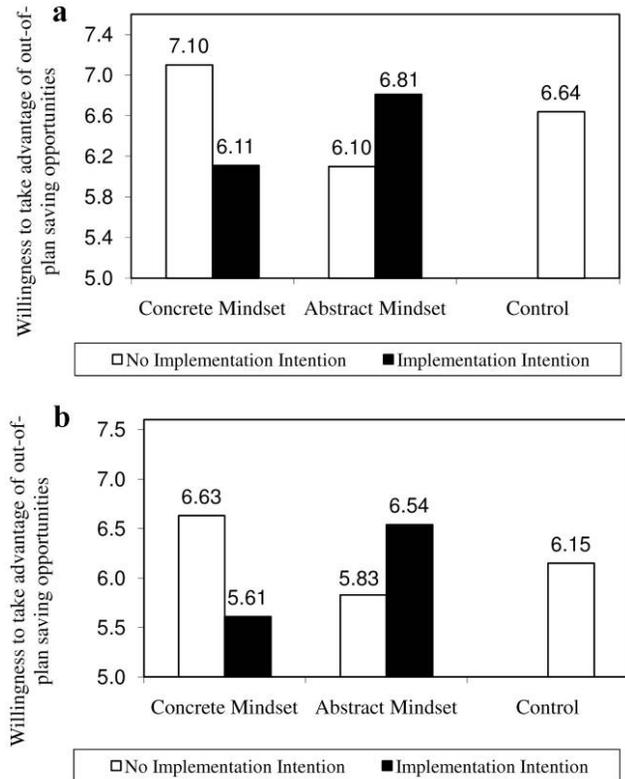
Experiment 2a Preliminary Analyses. Two preliminary analyses were performed. The first analysis concerned goal commitment. We computed the difference between commitment to saving money after the experimental manipulation and commitment to saving money before the experiment. Treatment group participants ($M = .26$) had a greater commitment-difference score than did control group participants ($M = -.07$; $F(1, 208) = 5.68, p = .02$). Within the treatment groups, this commitment-difference score was neither affected by mind-set ($M_{Con} = .17, M_{Abs} = .39$; $F(1, 163) = 2.95, p = .09$) nor by the interaction between implementation intention and mind-set ($F(1, 163) = .38, p = .60$). The commitment-difference score was affected by forming an implementation intention ($M_{NoInt} = .09, M_{Int} = .45$; $F(1, 163) = 7.99, p < .01$), as has often been observed in the goals literature (e.g., Diefendorff and Lord 2003; Kardes, Cronley, and Posavac 2005; but see Dholakia 1998).

The second analysis investigated hypothesis guessing and demand awareness. No participant guessed the purpose of the study. Participants could not articulate a relationship between the experimental tasks except to observe that they were related to saving money. No participant could articulate how the implementation intention and/or mind-set manipulation differentially influenced their responses to the means. When forced to choose the direction in which the manipulations may have affected them, all but one of the participants who formed an implementation intention thought that forming such a plan would lead them to be more likely to take advantage of money-saving means. With respect to the mind-set manipulation, 88% of the participants in the abstract condition and 89% of those in the concrete condition expected that this activity should increase the likelihood of taking advantage of money-saving means.

Experiment 2a Primary Analyses. One-hundred sixty-seven participants formed a goal intention (were not in the control group) and were included in the main analysis. An initial ANOVA did not find a significant four-way interaction between the order of commitment measure, implementation intentions, mind-set, and the eight specific means to save money ($F(7, 1113) = .78, p > .6$), so we collapsed across the order of commitment measure. Furthermore, the means factor did not interact with implementation intentions and mind-set ($F < 1$), so we averaged the ratings of the means to create an aggregate measure of the likelihood of taking advantage of out-of-plan means. Participants' likelihood of taking advantage of these means was reliably affected by the interaction between forming an implementation intention and mind-set ($F(1, 163) = 23.32, p < .01$; see fig. 2a). Consistent with hypothesis 1, when participants adopted a concrete mind-set, forming an implementation intention resulted in less willingness to take advantage of means than not forming an implementation intention ($M_{NoInt} = 7.10, M_{Int} = 6.11$; $F(1, 163) = 16.73, p < .01$). Consistent with hypothesis 2a, an abstract mind-set mitigated the detrimental influence of forming an implementation intention on the

FIGURE 2

EXPERIMENTS 2A (a) AND 2B (b): THE EFFECT OF FORMING AN IMPLEMENTATION INTENTION ON THE WILLINGNESS TO ENGAGE IN AN OUT-OF-PLAN BEHAVIOR IS MODERATED BY THE ABSTRACTNESS OF THOUGHT



value of out-of-plan means ($M_{Con} = 6.11, M_{Abs} = 6.81$; $F(1, 163) = 7.08, p < .01$). Consistent with hypothesis 2b, an abstract mind-set reduced the value of out-of-plan means when people had not formed an implementation intention ($M_{Con} = 7.10, M_{Abs} = 6.10$; $F(1, 163) = 18.13, p < .01$).

We also investigated how participants in the experimental conditions compared to participants in the control condition, who neither formed a goal intention nor experienced any of the manipulations. Of note, participants in the concrete mind-set–implementation intention condition were less willing to take advantage of means than participants in the control condition ($M = 6.11$ and 6.64 , respectively; $F(1, 205) = 4.86, p = .03$). Thus, the combination of forming an implementation intention and adopting a concrete mind-set made participants less interested in these (out-of-plan) means than participants who had not been thinking about the goal of saving money at all. Similarly, participants in the abstract mind-set–no implementation intention condition were also less willing to pursue these means than control participants ($M = 6.10$ and 6.64 , respectively; $F(1, 205) = 5.33, p = .03$). However, participants were reliably more willing to take advantage of the means in the concrete mind-set–no

implementation intention condition ($M = 7.10$) than in the control condition ($M = 6.64$; $F(1, 205) = 4.12$, $p = .04$) and were significant but nonsignificantly more likely to take advantage of the means in the abstract mind-set–implementation intention condition ($M = 6.81$) than in the control condition ($M = 6.64$; $F(1, 205) = .45$, $p = .51$).

Although the eight rated means were intended to be “out-of-plan” means for all participants, some of the participants mentioned one of these eight means in their implementation plan. For participants who did this, the mentioned means was removed from the average means evaluation score. The implementation intention by mind-set interaction remained significant ($F(1, 163) = 21.40$, $p < .001$).

Experiment 2b Preliminary Analyses. Again, two preliminary analyses were performed. Treatment group participants ($M = .16$) showed a greater increase in their commitment to the saving-money goal than control group participants ($M = -.02$; $F(1, 202) = 2.77$, $p = .09$). Within the treatment groups, this commitment increase was not affected by mind-set ($M_{\text{Con}} = .15$, $M_{\text{Abs}} = .16$; $F(1, 159) = .01$, $p > .9$) or by the interaction of implementation intention and mind-set ($F(1, 159) = 2.29$, $p = .13$). The increase in commitment was affected by forming an implementation intention ($M_{\text{No Int}} = .03$, $M_{\text{Int}} = .28$; $F(1, 159) = 7.11$, $p < .01$).

Participants could neither articulate the purpose of the study, a relationship between the experimental tasks and the dependent measure, nor how the implementation intention and mind-set manipulations might have influenced their responses. When forced to choose the direction in which the manipulations may have affected them, 97% of participants who formed an implementation intention thought that forming such a plan would lead them to be more likely to take advantage of the money-saving means. Similarly, 94% of the participants in the abstract condition and 96% of those in the concrete condition expected that the mind-set manipulation should lead people to be more likely to take advantage of those means.

Experiment 2b Primary Analyses. One hundred sixty-three participants were included in the main analysis. An initial ANOVA did not find a significant four-way interaction between the order of commitment measure, implementation intentions, mind-set, and the specific means ($F(7, 1085) = .71$, $p = .66$), so we collapsed across the order of commitment measure. Furthermore, the means factor did not interact with implementation intentions and mind-set ($F < 1$), so we averaged the ratings of the means to create an aggregate measure of the likelihood of taking advantage of out-of-plan means. Participants' likelihood of taking advantage of these means was reliably affected by the interaction between forming an implementation intention and mind-set ($F(1, 159) = 24.46$, $p < .001$; see fig. 2b). When participants adopted a concrete mind-set, forming an implementation intention resulted in less willingness to take advantage of means than not forming an implementation intention ($M_{\text{No Int}} = 6.63$, $M_{\text{Int}} = 5.61$; $F(1, 159) = 14.92$, $p < .01$). Consistent with hypothesis 2a, an abstract mind-

set mitigated the detrimental influence of forming an implementation intention on the value of out-of-plan means ($M_{\text{Con}} = 5.61$, $M_{\text{Abs}} = 6.54$; $F(1, 159) = 17.53$, $p < .01$). Consistent with hypothesis 2b, an abstract mind-set reduced the value of out-of-plan means when people had not formed an implementation intention ($M_{\text{Con}} = 6.63$, $M_{\text{Abs}} = 5.83$; $F(1, 159) = 8.02$, $p < .01$).

As in experiment 2a, we compared responses in these experimental conditions to responses in the control condition. Again, participants were less willing to take advantage of the means in the concrete mind-set–implementation intention condition ($M = 5.61$) than in the control condition ($M = 6.15$; $F(1, 199) = 4.13$, $p = .04$). Participants were also slightly, but nonsignificantly, less willing to take advantage of the means in the abstract mind-set–no implementation intention condition ($M = 5.83$) than in the control condition ($M = 6.15$; $F(1, 199) = 1.17$, $p = .28$). Finally, participants in the abstract mind-set–implementation intention condition ($M = 6.54$) were marginally more likely to take advantage of the means than those in the control condition ($M = 6.15$; $F(1, 199) = 3.39$, $p = .07$), and those in the concrete mind-set–no implementation intention condition were reliably more likely to do so ($M = 6.63$; $F(1, 199) = 4.81$, $p = .03$).

A supplemental analysis showed that some participants mentioned one of the eight means in their implementation plan. For participants who did this, the mentioned means was removed from the average means evaluation score. The implementation intention by mind-set interaction remained significant ($F(1, 159) = 24.09$, $p < .001$).

Discussion

The results of experiments 2a and 2b replicate the results of experiment 1. First, forming an implementation intention decreases the attractiveness of goal-consistent, out-of-plan behaviors when a person is in a concrete mind-set (hypothesis 1). Second, the detrimental influence of forming an implementation intention is mitigated when participants are in an abstract mind-set (hypothesis 2a). Third, in the absence of an implementation intention, an abstract (vs. concrete) mind-set lessens the appeal of goal consistent behavior (hypothesis 2b).

In experiment 2, the means were directly presented as accepted methods of saving money. The fact that the attractiveness of the means was still influenced by the manipulations suggests that the observed effects are not just a consequence of participants failing to notice the goal relevance of other means. Instead, it appears that goal-consistent, out-of-plan means are devalued even when they are noticed, as a consequence of forming an implementation intention and then thinking concretely when these means are evaluated. Of course, this does not mean that attention narrowing cannot contribute to the failure to pursue out-of-plan means, only that this process was not active in experiment 2.

Also of importance, experiment 2b establishes that experiment 1's results were not merely due to the semantic

overlap between the target goal and the mind-set manipulations. By using a mind-set manipulation that was unrelated to the target goal, this experiment strongly suggests that specific mind-sets emerged and affected subsequent processing.

Experiments 1 and 2 show that implementation intentions may not always be beneficial and, more specifically, that the influence of implementation intentions on the evaluation of goal-consistent, out-of-plan behaviors is sensitive to a person's mind-set. However, although the how/why mind-set manipulation is typically used in the action identification literature, it would be preferable to have a mind-set manipulation that even more indirectly influences the level of thought specificity. Also, the mind-set manipulation used in the first two experiments is not actionable in a natural consumer context. The next two studies will instantiate abstract and concrete mind-sets by asking individuals to think about their goals in the near future versus the distant future (experiment 3) or to adopt a promotion versus a prevention focus (experiment 4).

EXPERIMENT 3

An influential line of research has examined how temporal distance influences the construal of events. This research has shown that when individuals think about the near future, they have a tendency to think in more concrete, lower-level terms, whereas when they think about the distant future they think in more abstract, higher-level terms (Liberman, Sagristano and Trope 2002; Liberman and Trope 1998; Trope and Liberman 2003). We anticipate that temporal distance has a similar influence on the abstractness of goal-related thoughts. The abstractness of mind-sets and, thus, the influence of implementation intentions, should depend on when one anticipates pursuing a goal. Experiment 3 manipulates the time frame of the goal and examines the effect of implementation intentions on people's willingness to take advantage of a variety of out-of-plan means.

Method

Participants. One hundred seventy-four undergraduate business students participated in the experiment in exchange for extra credit.

Design. The study employed a 2 (form implementation intentions: no, yes) \times 2 (time frame: near, distant) design with each participant rating eight means.

Procedure. This study was conducted using personal computers and Authorware software. The cover story presented to the participants was the same as in experiment 2. The goal-intention procedure was similar to the one in prior studies except for an additional sentence about the troubled economy (to increase the salience of the saving goal) and an additional sentence manipulating when the participant would want to save for something (immediately vs. in 6 months). Half of the participants formed an implementation intention, with the implementation intention manipulation

adjusted to reflect the temporal distance factor. Specifically, participants read these instructions in the near (distant) condition:

Please decide on a method you could implement to save money for a month. Form a detailed plan of how you will implement this method to save money for one month, starting *immediately (in 6 months)*. In the space below, list a method that you will use to save money. Your chosen method should be an action you will take toward saving more money during the month. Form a very detailed plan of what exactly you will do to take advantage of this method. Focusing on just one method to save money should lead you to be more likely to take advantage of this method when opportunity arises. This should be a plan that you are committed to and that you really plan to implement!

Those who did not form an implementation intention were asked to list words containing the letter "d" in the middle. Next, participants who formed an implementation intention rated their likelihood of taking advantage of each of eight out-of-plan means in a 1-month interval beginning either immediately or in 6 months (depending on the time frame for which they formed their plan). The out-of-plan means were the same as those used in experiment 2 (see the appendix). For participants who did not form an implementation intention, approximately half were asked about their likelihood of taking advantage of these means in the 1-month interval beginning immediately with the others asked about the interval beginning in 6 months. The time frame for which the participants thought about their goal, the implementation intention, and the likelihood of taking advantage of the presented means remained consistent within participants.

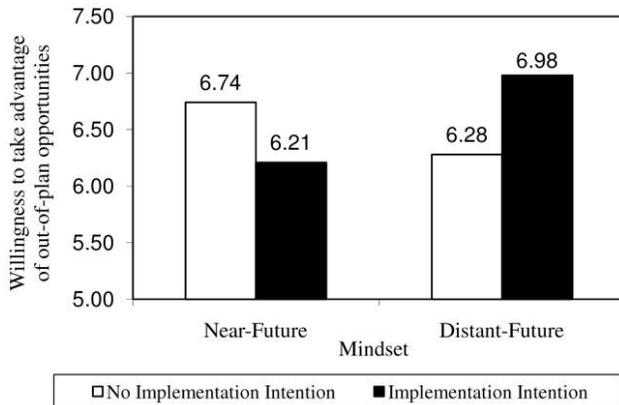
The dependent measure was the participants' likelihood of taking advantage of each of the eight out-of-plan means. The participants were presented with each means, one by one, and were asked to rate their likelihood of taking advantage of each means on a scale ranging from 1 ("not at all likely to use this method") to 9 ("very likely to use this method").

Results

A 2 (implementation intentions) \times 2 (time frame) \times 8 (specific means-rated) mixed ANOVA revealed a significant interaction between forming an implementation intention and the time frame on the likelihood of taking advantage of goal-directed, out-of-plan means ($F(1, 170) = 15.27, p < .01$) but no interaction of these two factors with the means factor ($F(7, 1190) = .53, p = .82$). The means evaluations were averaged to develop an aggregate measure of each participant's likelihood of taking advantage of out-of-plan means. Figure 3 shows the results. When participants evaluated means for the near future, forming an implementation intention resulted in less willingness to take advantage of means than not forming an implementation intention ($M_{No Int} = 6.74, M_{Int} = 6.21; F(1, 170) = 6.53, p = .01$). Consistent with hypothesis 2a, the distant-future construal mitigated the

FIGURE 3

EXPERIMENT 3: THE EFFECT OF FORMING AN IMPLEMENTATION INTENTION ON THE WILLINGNESS TO ENGAGE IN OUT-OF-PLAN BEHAVIORS IS MODERATED BY THE TEMPORAL FRAME



detrimental influence of forming an implementation intention on the value of out-of-plan means ($M_{Near\ Fut} = 6.21$, $M_{Dist\ Fut} = 6.98$; $F(1, 170) = 14.36$, $p < .01$). Consistent with hypothesis 2b, a distant-future construal reduced the value of the means when people had not formed an implementation intention ($M_{Near\ Fut} = 6.74$, $M_{Dist\ Fut} = 6.28$; $F(1, 170) = 3.69$, $p = .056$).

A supplemental analysis showed that some participants mentioned one of the eight means in their implementation plan. For participants who did this, the mentioned means was removed from the average means evaluation score. The implementation intention by time frame interaction remained significant ($F(1, 170) = 14.17$, $p < .01$).

Discussion

Prior research has shown that thinking about the near future leads individuals to adopt a concrete mind-set, whereas thinking about the distant future leads individuals to adopt an abstract mind-set. In experiment 3, temporal distance was used to alter a person's mind-set and, thus, to moderate the influence of forming an implementation intention on the desire to take advantage of goal-consistent, out-of-plan means. In particular, when participants formed an implementation intention for the near future (distant future), they were less likely (more likely) to take advantage of out-of-plan means than those who did not form an implementation intention.

EXPERIMENT 4

A second factor that influences the adoption of a concrete or abstract mind-set is having a promotion focus or a prevention focus. Specifically, regulatory focus theory suggests that people can focus on their goals in two different ways

(Higgins 1987): individuals who adopt a promotion focus view their goals as hopes and aspirations, but individuals who adopt a prevention focus view the same goals as duties and obligations (Zhu and Meyers-Levy 2007). Research further suggests that adopting a promotion focus leads to abstract processing, whereas adopting a prevention focus leads to concrete processing (Lee, Keller, and Sternthal 2010; Zhu and Meyers-Levy 2007). We hypothesize that adopting a prevention (promotion) focus will make individuals think about their goals more concretely (abstractly); this change in mind-set should, in turn, alter the influence of implementation intentions on an individual's willingness to take advantage of goal-directed, out-of-plan means.

Method

Participants. One hundred forty-two undergraduate business students participated in the experiment in exchange for extra credit.

Design. The study employed a 2 (form implementation intentions: no, yes) \times 2 (regulatory focus: prevention, promotion) design, with each participant rating eight means.

Procedure. The procedure for the formation of goal intentions and implementation intentions was the same as in experiment 2. Once participants formed implementation intentions or completed the letter-processing task, they were encouraged to adopt either a promotion focus or a prevention focus via a manipulation of regulatory focus adapted from Zhu and Meyers-Levy (2007). To adopt the prevention focus, participants were asked to consider their duties and obligations related to money and how these may have changed as they grew up. To adopt the promotion focus, participants were asked to consider their current hopes and aspirations related to money and how these may have changed as they grew up. Regardless of regulatory focus, participants were told to write their thoughts in as much detail as possible.

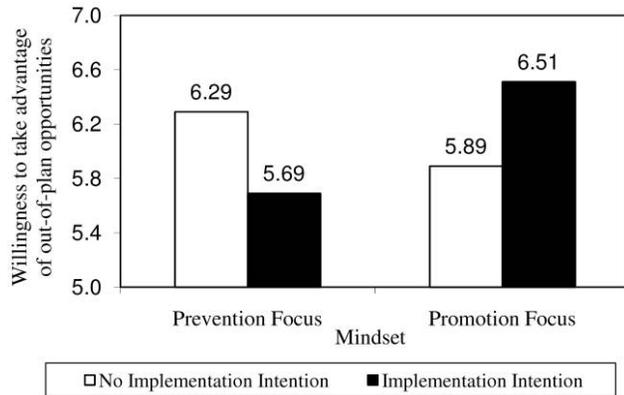
The dependent measure was the participants' likelihood of taking advantage of each of the eight out-of-plan means used in experiments 2 and 3 (see the appendix). The participants were presented with each means, one by one, and were asked to rate their likelihood of taking advantage of each means on a scale ranging from 1 ("not at all likely to use this method") to 9 ("very likely to use this method").

Results

A 2 (implementation intentions) \times 2 (regulatory focus) \times 8 (specific means-rated) mixed ANOVA revealed a significant interaction between forming an implementation intention and regulatory focus on the likelihood of taking advantage of goal-directed, out-of-plan means ($F(1, 138) = 8.56$, $p < .01$) but no interaction of these two factors with the means factor ($F(7, 966) = 1.43$, $p = .19$). The means evaluations were averaged to develop an aggregate measure of each participant's likelihood of taking advantage of out-of-plan means. Figure 4 shows the results. When participants

FIGURE 4

EXPERIMENT 4: THE EFFECT OF FORMING AN IMPLEMENTATION INTENTION ON THE WILLINGNESS TO ENGAGE IN OUT-OF-PLAN BEHAVIORS IS MODERATED BY REGULATORY FOCUS



evaluated means while in a prevention focus, forming an implementation intention led to less willingness to take advantage of out-of-plan means than not forming an implementation intention ($M_{No\ Int} = 6.29$, $M_{Int} = 5.69$; $F(1, 138) = 3.81$, $p = .05$). Consistent with hypothesis 2a, the promotion focus mitigated the detrimental influence of forming an implementation intention on the value of out-of-plan means ($M_{Pre} = 5.69$, $M_{Pro} = 6.51$; $F(1, 138) = 8.49$, $p < .01$). A promotion focus reduced the value of out-of-plan means when people had not formed an implementation intention, but this effect was not significant ($M_{Pre} = 6.29$, $M_{Pro} = 5.89$; $F(1, 138) = 1.68$, $p = .19$).

A supplemental analysis showed that some participants mentioned one of the eight means in their implementation plan. For participants who did this, the mentioned means was removed from the average means evaluation score. The implementation intention by regulatory focus interaction remained significant ($F(1, 138) = 10.13$, $p < .01$).

Discussion

Experiment 4 showed that forming an implementation intention (vs. not forming one) decreases participants' likelihood of taking advantage of goal-directed, out-of-plan means when they are encountered under a prevention focus but increases participants' likelihood of taking advantage of these means when they are encountered under a promotion focus. We posit that this happens because adopting a prevention (promotion) focus leads to more concrete (abstract) processing (compare Zhu and Meyers-Levy 2007) and that forming an implementation intention prior to engaging in concrete (instead of abstract) processing leads to a lower likelihood of taking advantage of out-of-plan goal-directed means.

GENERAL DISCUSSION

Although implementation intentions are generally thought to be beneficial, this article has shown that forming an implementation intention can lead individuals to be less likely to take advantage of goal-consistent, out-of-plan opportunities. Specifically, our evidence suggests that a person's mind-set moderates the influence of an implementation intention by affecting whether people are focused on the means in the implemental plan instead of the goal associated with the plan. Experiment 1 showed that an implementation intention discouraged the use of a viable means when people were in a concrete mind-set but that this effect was mitigated when people were in an abstract mind-set. Experiment 2 showed that a devaluation effect contributes to the negative effects of forming an implementation intention. Experiments 3 and 4 used different manipulations of mind-set to explore situations in which consumers might naturally adopt concrete versus abstract mind-sets.

Theoretical Implications

Our research bridges the work on implementation intentions and action identification theory. We find that adopting a concrete (vs. an abstract) mind-set after forming an implementation intention leads individuals to devalue out-of-plan means. Perhaps a more important contribution is an increased understanding of how forming an implementation intention, which has been found to be extremely beneficial for goal pursuit, can lead to a decrease in flexibility and a decline in goal achievement. We contend that forming implementation intentions leads people to become overly focused on the specific details of the implemental plan and less focused on the overarching goal. Switching the focus to an abstract mind-set broadens the focus to include the goal and allows out-of-plan means to once again become valued.

These findings suggest that it is important to examine some of the boundary conditions of the benefits of implementation intentions. Orbell et al. (1997) showed that implementation intentions do not work when the respective goal intention is weak. Sheeran, Webb, and Gollwitzer (2005) found that when an individual disengages from a goal, either because he or she has decided to no longer pursue it or because the goal has already been achieved, the positive effects of implementation intentions seem to disappear. Furthermore, Powers, Koestner, and Topciu (2005) found that perfectionists reported doing significantly worse at reaching their personal goals when they formed implementation intentions than when they completed a control exercise. These authors argued that implementation planning aroused negative affect for the socially prescribed (self-critical) perfectionists. Finally, Gollwitzer and Brandstätter (1997) found that implementation intentions were only beneficial for difficult (vs. easy) goals, but later research suggested that this finding was likely to be due to a ceiling effect and that there are situations in which even easy goals will benefit from implementation intentions (Dewitte, Ver-

guts, and Lens 2003). The current work suggests yet another boundary to the benefits of implementation intentions.

Overall, this work suggests that people need to be cautious when specifying implemental plans, as implementation intentions may not be universally advantageous. For example, prevention-focused goals are often achieved using multiple means. Yet, we show that implementation intentions may discourage the use of efficacious means that are not specified in the plan. At first blush, this suggests that implemental plans should include more than one means to be maximally effective. However, there is likely to be a trade-off between the completeness of planning (i.e., identifying multiple if/then contingencies) and the complexity of activating these plans (i.e., potential interference among plans that incorporate multiple situational cues). Complex implemental plans may thus be influenced by both memory interference and memory facilitation processes. Insight into how to best construct complex implemental plans is needed.

Marketing Implications

This research has several implications for consumer welfare, for marketers, and for salespeople. First, understanding when to form versus not to form a plan has implications for consumer welfare. For instance, it has been estimated that weight gain and obesity in the majority of the population would not be as prevalent if people ate a few less bites of food at each meal or took approximately 2,000 extra steps each day (Hill et al. 2003). Yet, if people make a plan to eat a bit less each day, they might become less likely to walk the extra steps. Moreover, if the plan to “eat a few less bites per day” is specific (e.g., skip an after dinner snack), the plan may make a person less likely to take advantage of other opportunities to reduce consumption of unnecessary calories. This research suggests that recommendations to “make a plan and stick to it” may have negative consequences that have not been anticipated. These findings may generalize to any implementation intention supporting a nonhabitual goal (e.g., controlling impulsive behavior, living a healthier lifestyle, being a better person), provided a person is in a concrete mind-set.

Second, this work has implications for managers and for salespeople. Sujan, Weitz, and Kumar (1994) noted that salespeople primarily focus on working hard and putting in long hours. They exert much effort while using the same strategy or set of strategies, not necessarily realizing that new information about the customer is available or that a different selling tactic could be used in addition to, or instead of, the current one. Our results suggest that there may indeed be circumstances in which a salesperson forms a plan to make a sale but, by doing so, becomes less willing to consider alternative tactics to make the sale. This may be especially likely if the salesperson has a short-term or prevention-based focus (e.g., “I need to sell \$X by tomorrow or I will fail to make quota”). Thus, the current research is especially useful for understanding conditions under which a salesperson will be flexible (Weitz, Sujan, and Sujan, 1986). Similarly, managers need to be able to remain open-minded

when training and coaching employees. If they narrowly focus on using a specified training strategy, they might become less likely to adopt strategies that could be more effective.

Directions and Implications for Future Research

The results highlight the importance of investigating the moderating influence of a person’s mind-set. It is important to recognize that mind-sets alter the organization of information associated with goal pursuit and may direct attention to parts of this information. For example, a concrete mind-set increases a person’s sensitivity to the details. When the details of a plan encourage a person to focus on a single means, there is a lack of flexibility in goal pursuit in a concrete mind-set. Yet, if the details of a plan encourage a person to focus on multiple means, there may be more flexibility in goal pursuit in a concrete mind-set. In fact, the results of experiments 2a and 2b show that a concrete mind-set increased the appeal of all means (vs. a control group) when there was no implemental plan. It may be that when a goal is active, concrete mind-sets encourage people to more seriously consider the means available for achieving the goal. We have also collected preliminary evidence that shows that when individuals form a plan that focuses on several means, a concrete mind-set leads them to be more likely to take advantage of goal-directed opportunities.

More broadly, people can create implemental plans that have any of a number of characteristics, and a concrete mind-set should amplify the influence of these characteristics. In other words, if an implemental plan highlights persistence, accuracy, risk aversion, or any of a number of other performance factors, a concrete mind-set might encourage behavior that is consistent with these plan guidelines. In contrast, abstract mind-sets encourage people to focus more broadly on the goal responsible for the plan. Of course, to the extent that there is a goal hierarchy, the goal in question can be represented at many levels of specificity. It may be the case that primes, contexts, and recent behavior can influence how the goal is recast at the time an out-of-plan means is considered.

Implementation intentions can also vary in their specificity. The specificity of an implementation intention should moderate the intention’s influence on taking advantage of out-of-plan means when a person is in a concrete mind-set. Furthermore, implementation intentions can incorporate different classes of goals. For example, a plan to eat healthily (e.g., eat a salad) can be accompanied by a plan to make a quick choice (e.g., pick a healthy food item quickly). The first goal refers to a choice outcome, and the second goal refers to choice execution. It is hard to predict the influence of the execution goal, but it might magnify or dilute out-of-plan means devaluation in a concrete mind-set but have no influence in an abstract mind-set. Additionally, implementation intentions can vary in their complexity or length. Implementation intentions that involve a sequence of behaviors, each contingent on the previous behavior, can discourage flexibility. It may be that abstract mind-sets cannot

mitigate the devaluation of out-of-plan means once the plan has been partially executed.

Finally, it is important to understand the influence of knowledge about means availability. After all, the evaluation of an out-of-plan means is most important when the in-plan means is not currently available. Yet, a person's commitment to the in-plan means must in some way be predicated on the fact that the person expects that the in-plan means will become available at some time in the future. What happens when a person learns that the means identified in an implemental plan are no longer available? Does the person revise the plan, revert to a more abstract representation of the plan, or, in some cases, fail to respond to this information? Understanding how people transition from the knowledge that the "means have not appeared" to the "means cannot appear" (or the "means do not work") and the influence of this knowledge on a person's willingness to engage in out-of-plan behaviors is a fundamental issue for understanding goal pursuit.

APPENDIX

STIMULI FROM EXPERIMENTS 2A, 2B, 3, AND 4

1. When shopping, purchase more groceries that are on sale that week
2. Cook at home more
3. Limit dining in restaurants
4. Donate old clothing to get a tax break
5. Stockpile when nonperishable groceries are on sale
6. Combine errands in one trip to save money on gas
7. Decrease how much you purchase on impulse
8. Significantly decrease how much new clothing you purchase

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