

LETTING GOOD OPPORTUNITIES PASS US BY:  
EXAMINING THE ROLE OF MINDSET DURING GOAL PURSUIT

By

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To my parents—without their support and encouragement this journey would have been impossible.

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## TABLE OF CONTENTS

	<u>page</u>
ACKNOWLEDGMENTS .....	4
LIST OF TABLES .....	7
LIST OF FIGURES .....	8
LIST OF FIGURES .....	8
ABSTRACT.....	9
CHAPTER	
1 INTRODUCTION .....	10
2 THE PATH FROM A DESIRED OUTCOME TO AN ACHIEVED GOAL.....	17
Goal Intentions and the Intention-Behavior Gap.....	17
Model of Action Phases.....	19
Beneficial Effects of Implementation Intentions and the Role of Mindsets.....	20
Implementation Intentions.....	20
Moderators of the Beneficial Effects of Implementation Intentions .....	21
Mindsets .....	22
Goal-Directed Pathways and the Links among Goals and Means.....	23
3 FLEXIBILITY IN GOAL PURSUIT .....	25
Goal-Directed Perception .....	25
Opportunistic Planning .....	26
Implementation Intentions and Flexibility.....	28
Implementation Intentions and Rigidity .....	31
4 ACTION IDENTIFICATION AND THE “OPTIMAL” MINDSET.....	34
Action Identification Theory .....	34
Control Theory.....	35
Possible Explanations .....	37
Possible Explanation 1: The Devaluation Effect.....	37
Possible Explanation 2: Commitment and Focus – The Goal or the Means .....	38
5 OVERVIEW OF EXPERIMENTS .....	40
6 EXPERIMENT 1 .....	42
Hypotheses.....	42
Method.....	42

Results.....	46
Discussion.....	46
7 EXPERIMENT 2.....	50
Study 2a.....	51
Hypotheses.....	51
Method.....	51
Results.....	52
Discussion.....	54
Study 2b.....	55
Hypotheses.....	56
Method.....	56
Results.....	57
Discussion.....	57
8 EXPERIMENT 3.....	61
Hypotheses.....	61
Method.....	61
Results.....	63
Discussion.....	64
9 EXPERIMENT 4.....	67
Hypotheses.....	67
Method.....	67
Results.....	68
Discussion.....	69
10 EXPERIMENT 5.....	72
Hypotheses.....	72
Method.....	73
Results.....	75
Discussion.....	75
11 GENERAL DISCUSSION.....	77
Implications.....	78
Limitations and Future Research.....	79
LIST OF REFERENCES.....	84
BIOGRAPHICAL SKETCH.....	89

## LIST OF TABLES

<u>Table</u>	<u>page</u>
7-1. Effect of mindset after forming an implementation intention on the willingness to save using three common money-saving means.....	60

## LIST OF FIGURES

<u>Figure</u>	<u>page</u>
6-1. Effect of mindset after forming an implementation intention on the amount of money saved. ....	49
7-1. Effect of mindset after forming an implementation intention on the willingness to take advantage of goal-relevant, money-saving opportunities. ....	59
7-2. Effect of mindset after forming an implementation intention on the willingness to take advantage of common ways to save money. ....	59
7-3. Effect of mindset after forming an implementation intention on the willingness to save using three common money-saving means. ....	60
8-1. Effect of temporal construal of a goal and its' associated implementation intention on the willingness to take advantage of goal-relevant means. ....	66
9-1. Effect of the adopted regulatory focus after forming an implementation intention on the willingness to take advantage of goal-directed means. ....	71
10-1. Effect of the number of means specified in an implementation intention on the number of snacks purchased. ....	76

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By

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Chair: Chris Janiszewski  
Cochair: Robyn LeBoeuf  
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This research examines how people transform their goal intentions into appropriate goal-directed actions. Forming an implementation intention encourages people to develop a plan, prepare for the occurrence of 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 alternative means. I propose that the beneficial effects of forming an implementation intention are moderated by the individual's level of thought abstractness when presented with alternative goal-attainment opportunities. In a set of five experiments, I show that forming an implementation intention decreases (increases) the likelihood of responding to alternative, goal-relevant behaviors when a person is in a concrete (abstract) mindset.

## CHAPTER 1 INTRODUCTION

Over the past two decades, researchers have suggested that, whether we are consciously aware of it or not, much of our everyday behavior is goal-directed (e.g., Bagozzi and Dholakia 1999). As consumers, we constantly think about desired outcomes and end-points, and frequently reevaluate the gap between where we currently are in various aspects of our lives and where we yearn to be. We often set many goals for ourselves, yet at times, quickly give up during goal pursuit. Much research has addressed the ways in which people set goals and how they prioritize the pursuit of these goals. Yet the goal of this dissertation isn't to delve deeply into these topics (see Bagozzi and Dholakia 1999; Gollwitzer and Schaal 2001; Oettingen and Gollwitzer 2001 for excellent reviews). Instead, the goal of this dissertation is to understand why we often do not achieve our goals, to review the literature that addresses this issue, and to present new evidence that could bridge the commonly found intention-behavior gap.

Prior research suggests that even though people may have positive attitudes and positive intentions, these attitude and intentions don't always translate into appropriate behaviors. In particular, Sheeran (2002) found a large gap between individuals' intentions and their behavior and listed three reasons for this gap. First, a person may not remember his goal intention. Second, he may not take advantage of an opportunity to act, especially if this opportunity presents itself briefly. Third, he may remember their intention and notice the opportunity, but still question the feasibility and desirability of the intention.

One suggested approach to closing the intention-behavior gap is to form a plan, referred to as an implementation intention (e.g., Gollwitzer 1993, 1999; Sheeran 2002; Sheeran and Orbell 2000). Forming an implementation intention, or specifying how, when and where a person will achieve his goal, is often done in the pre-actional phase of the model of action phases

(Gollwitzer 1996; Heckhausen and Gollwitzer 1987). The pre-actional phase begins once a person decides that he wants to pursue a particular goal (the end of the pre-decisional phase), and leads him into the actional phase in which he carries-out goal-directed actions. During the pre-actional and the actional phases, a person adopts an implemental mindset which allows him to remain focused on the specified goal-directed path (Gollwitzer, Heckhausen and Steller 1990). An implemental mindset also leads a person to think more narrowly and process available information more selectively, making him more likely to disregard information he considers irrelevant or peripheral (Gollwitzer, Fujita and Oettingen 2004).

Existing research on implementation intentions suggests that specific task goals (e.g., taking vitamins, flossing, jogging in the morning) need specific plans. When a person forms a plan for such a goal, he should become better able to execute the specified parts of the plan and, thus, be better able to reach his goal. Not all of our goals are so specific. For more abstract goals, such as getting in shape or saving money, several means may be available. To get in shape, a person can exercise, eat healthier, and/or take weight loss supplements. To save money, he can dine out less, stock-pile groceries, and/or purchase less clothing. Yet people can't always predict the situations they will face and the goal-relevant opportunities that might become available. Nor can they always predict whether the plan they specified will be instrumental to achieving the goal. Thus, once they form an implementation intention, they need to maintain an open mind and be willing to take advantage of alternative goal-directed opportunities that become available.

In this dissertation, I aim to understand individuals' likelihood to take advantage of goal-directed means after forming an implementation intention, particularly when the goal is abstract and there are at least several ways to achieve it. In particular, I examine a specific consumer welfare goal: the goal to save money, which people often intend to accomplish but less often do

so. Even though a person who forms an implementation intention should be better able to take advantage of his specified means to reach his goal, I hypothesize that he may be more likely to miss alternative, and perhaps superior, goal-directed opportunities. This failure to notice superior opportunities occurs because forming an implementation intention leads to increased narrow-mindedness. In this dissertation, I examine when people can form a plan to save money yet still remain open-minded toward other goal-directed opportunities that may present themselves.

Research on goal-directed perception, goal systems theory, and the devaluation effect support my hypotheses. Work on goal-directed perception has shown that when people are focused on their goal, they often miss other things in their environment that would be obvious to those not as goal-focused (e.g., Simon and Chabris 1999). Moreover, goal-systems theory suggests that there is a stronger transfer of commitment between a goal and a means if the goal is linked to one means than if it is linked to several means (Kruglanski et al. 2002). Thus, forming an implementation intention should lead to a stronger transfer of commitment from the goal to the specified means, and a lower likelihood to take advantage of alternative means. Cognitive dissonance theory (Festinger 1957) supports this notion and suggests that once a decision is made to take advantage of a particular means, the attractiveness of alternative means should decrease. Lastly, research on the devaluation effect shows that the utility of an object is dependent on the intensity of people's goals in relation to that object (Brendl, Markman and Messner 2003). It is possible that forming an implementation intention makes other means seem less valuable and less instrumental, leading people to be less likely to take advantage of them.

Yet what happens once an implementation intention is formed, an implemental mindset is adopted, and due to one or more of these possible explanations, an individual becomes increasingly closed-minded toward other goal-directed opportunities? I suggest that, in

accordance with action-identification theory, the mindset adopted when goal-directed opportunities become available plays a key role in individuals' willingness to take advantage of these opportunities. Vallacher and Wegner (1985, 1987) find that any action can be identified in many ways, ranging from low-level, concrete action identities that specify how an action is performed to high-level, abstract action identities that specify why an action is performed. Vallacher and Wegner hypothesize that higher level action identities generally allow greater flexibility than lower level identities. In light of this work, I posit that the concreteness/abstractness of thought, at the time a person is evaluating goal consistent, out-of-plan behaviors, will moderate the influence of a previously formed implementation intention on individuals' likelihood to take advantage of goal-directed actions and their likelihood to engage in goal-consistent behavior.

I suggest that if it is anticipated that a person will be thinking concretely when exposed to goal-relevant opportunities, then the person should not be encouraged to form an implementation intention. Forming an implementation intention encourages a person to develop a specific plan. A concrete mindset reinforces thinking at a specific level. Thus, the concrete mindset reinforces commitment to a specific means, leading to a lower willingness to take advantage of alternative goal-relevant means. If it is anticipated that a person will be thinking abstractly when exposed to alternative goal-relevant opportunities, then the person should be encouraged to form an implementation intention. Forming an implementation intention encourages a person to develop a specific plan. An abstract mindset refocuses thinking at the goal level, as opposed to the plan level. Thus, the abstract mindset reinforces commitment to the goal, leading to a greater willingness to take advantage of alternative goal-relevant means.

These hypotheses will be tested in a set of five experiments. I examine the impact of mindset (abstract versus concrete) as well as that of other constructs that have been shown to affect individuals' thinking in a similar manner. I propose that regulatory focus (promotion versus prevention) and temporal construal (goal construed in the near-future versus distant-future) will influence the way people think about goal-relevant opportunities. In turn, this will influence an individuals' willingness to take advantage of goal-directed means and engage in goal-relevant behaviors once they form an implementation intention.

This research has several implications for consumer welfare, for marketers, and for salespeople. First, understanding when to form a plan, and when it would better to just consider the possible ways to attain a goal without committing to any specific means, 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 2000 extra steps each day (Hill et al. 2003). Yet, if people make a plan to eat a bit less each day, might they become less likely to walk the extra steps? This research has implications for helping people achieve their non-habitual goals such as going to doctors' appointments, eating healthier or saving money.

Second, much research has looked at the process of forming consideration sets and evaluating options throughout the purchase process (e.g., Chakravarti and Janiszewski 2003; Ratneshwar, Pechmann and Shocker 1996). When people form a consideration set, they often become less likely to consider alternatives they have already screened out. For instance, Wright and Barbour (1977) show that people are reluctant to reconsider information that has previously been used to reduce the size of a choice set. They suggest that screening on the basis of information available at prescreening "closes" the phase and, consequently, the information used

in that phase decreases in importance in a subsequent phase. While it is acceptable that an individual may consider an option and choose not to include it in his consideration set, marketers might be interested in understanding what happens when an alternative, and perhaps superior, option that wasn't previously considered is presented after the consideration set is formed. Under what circumstances would this option still be overlooked?

Third, this work has applications for managers and for salespeople. Sujan, Weitz and Kumar (1994) distinguish between working smart and working hard. Often times, salespeople focus on working hard and putting in long hours. They exert a lot of effort while utilizing the same strategy or set of strategies in selling situations. They don't realize that new information about the customer may be available or that a different selling tactic that could be used in addition to, or instead of, the current one. On the other hand, working smart often involves taking a step back, gathering more information about a selling situation, and using this improved understanding to modify selling behavior. Working smart leads salespeople to better adapt to particular situations, and thus be more effective in sales. Are there circumstances when a salesperson forms a plan as to how he or she will make the sale and, by doing so, becomes less willing to consider new information about the customer, more likely evaluate new information as less valuable, or disregard other available tactics to make the sale? This research is especially useful for salespeople engaging in personal selling since salespeople should be able to implement a sales presentation that is maximally effective for each customer (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 may become less likely to utilize new strategies which could be more beneficial to their employees, especially if their employees have different backgrounds or skill-sets than the managers are accustomed to.

In the next chapter, I will discuss the commonly found gap between goal intentions and goal achievement, examine the effect that forming an implementation intention has on bridging this gap, and explain why this research has been so influential.

CHAPTER 2  
THE PATH FROM A DESIRED OUTCOME TO AN ACHIEVED GOAL

**Goal Intentions and the Intention-Behavior Gap**

In traditional theories of goal-striving, the intention to achieve a certain goal was seen as an immediate determinant of goal-directed action. Recent research has shown that regardless of the type of goal intentions that people form, there remains a large gap between their intentions and behavior. In a meta-analysis, Sheeran (2002) found an overall correlation of .53 between intentions and behavior. Similarly, Webb and Sheeran (2006) found that a medium-sized change in goal intention strength translates to a small change in goal achievement.

Why is there such a gap between intentions and behavior? Changing circumstances lead people to abandon or revise some of their intentions. It is also not uncommon for people to procrastinate in acting on their intentions and thus fail to initiate goal-directed behavior. Since in everyday life people normally strive for multiple, often even competing, goals, goal pursuit may come to an early halt because competing projects have temporarily gain priority and people fail to successfully resume the path to the original goal. Furthermore, to achieve their goals, people need to seize viable opportunities to act. This can be particularly difficult when attention is directed elsewhere and when these goal-directed opportunities are not obvious or are only available briefly.

The intention-behavior gap can be summed up with three key explanations. First, people may not remember their goal intentions. When a behavior is not part of a routine or is not habitual, a person can forget to perform the intended behavior. This is especially common if the intended behavior is new or unfamiliar. For example, the majority of the participants who intended to perform a breast self-examination but later failed to follow-up on their intentions commented that they forgot to do so (Orbell, Hodgkins and Sheeran 1997). Moreover, the

likelihood of forgetting an intention increases as the time between forming a goal intention and initiating a goal-directed activity increases (Gollwitzer and Sheeran 2006).

Second, people may not seize the opportunity to act even if it is available, especially when the opportunity presents itself for a brief period of time. They may not notice a good time to begin the goal-directed behavior or might be unsure how to behave in such an opportune situation. Oettingen, Hönig, and Gollwitzer (2000) show that this can occur even when people form strong goal intentions to perform a behavior at a particular time. In their study, participants were provided with computer diskettes containing four concentration tasks. They were asked to form goal intentions to perform these tasks at a particular time each Wednesday morning during the upcoming four weeks. A program on the diskette recorded the time that participants started to work on the task. Oettingen et al. (2000) found that the mean deviation from the intended start time was eight hours, a discrepancy of two hours on average for each specified opportunity. To make a similar point, Dholakia and Bagozzi (2003) presented participants with a task to evaluate a website that would only be available for a brief period of time. They found that only thirty-seven percent of the participants who formed a goal intention evaluated the website at the specified time.

Third, people may remember their goal intention *and* recognize an opportunity during which they can begin to achieve their goal. Yet they may begin to question the desirability and feasibility of their goal intention. This outcome is most likely when an intention to initiate a behavior involves a trade-off between attractive long-term consequences and less-attractive short-term consequences. Support for this reasoning has been shown in studies which examine sexual health and the likelihood that individual will give into momentary desires (as opposed to practicing safe sex) (Sheeran, White and Phillips 1991).

## **Model of Action Phases**

Clearly, forming a goal intention is an important step toward goal achievement. Yet the number of goals which are salient on a daily basis can be overwhelming, especially if people think about them on a more-concrete, specific level. Time is a limited resource and people have to be selective about which goals to pursue. The model of action phases (Gollwitzer 1996; Heckhausen and Gollwitzer 1987) suggests that people generally proceed through four different, consecutive phases when deciding which goals to pursue and how to proceed on the path to goal achievement. This model also assumes that different underlying principles guide goal selection and goal achievement.

In the first, pre-decisional phase, people deliberate and choose among potential goals. The model of action phases assumes that people have numerous needs and desires, but that they cannot satisfy them all at once. Thus, they determine the feasibility and desirability of their wishes and desires. The transition from a wish or desire to a binding goal leads them to form a goal intention and enter the pre-actional phase. In the pre-actional phase, people plan where, when, and how they will work towards goal achievement. If the actions to be executed are routine or habitual, this step is likely to be easier. Otherwise, they often create a plan or outline how they will achieve their goal.

When people begin to execute their plan or act towards their goal, they enter the actional phase. During this phase, they must take advantage of opportunities to execute their goal-directed behaviors, and work towards goal achievement. This could include engaging in behaviors they specified when they formed a plan, or alternative goal-directed behaviors. Once goal-directed behaviors are completed, people enter the post-actional phase, where they evaluate the extent to which they achieved their goal. During this stage, they compare what has been achieved to what has been desired.

This dissertation will focus mostly on the second and third phases of this model: the preactional and the actional phases. During these stages, people plan how they will achieve their goal and take the actions necessary for goal achievement. Planning often helps alleviate the crucial volitional problems of goal achievement, such as being too easily distracted from goal pursuit or giving up when increased effort and persistence are needed. In the goal literature, planning is often referred to as forming an implementation intention and involves setting up and mentally simulating the steps that need to be taken at an appropriate time in order to achieve a goal (Gollwitzer 1993, 1999).

Whereas much research shows the medium-to-large sized gap between intentions and behavior, recent investigations of the linkage of the preactional and actional phases and the beneficial effects of implementation intentions suggest that forming an implementation intention and adopting the implemental mindset can help people overcome some of the aforementioned issues. The next section will discuss in greater depth the role of implementation intentions and the implemental mindset in goal achievement.

### **Beneficial Effects of Implementation Intentions and the Role of Mindsets**

#### **Implementation Intentions**

Recently, a meta-analysis identified more than ninety studies demonstrating the beneficial effects of forming an implementation intention (Gollwitzer and Sheeran 2006). Forming an implementation intention involves asking people when, where, and how they will carry out their intentions (e.g., Gollwitzer 1993, 1999). Implementation intentions take the format of “If Situation X is encountered, then I will perform Behavior Y!” Implementation intentions are different from goal intentions, which conform to the format of “I intend to reach Z!”, where Z may relate to a certain outcome or behavior to which a person feels committed. Both goal intentions and implementation intentions are acts of will, whereby the former specifies

an intention to achieve a goal and the latter refers to an intention to execute a plan. In particular, forming an implementation intention is suggested to facilitate goal pursuit by increasing the accessibility of the situational cue and by making the response to that cue more efficient through situation-response linkages (Gollwitzer 1993, 1999; Gollwitzer, Bayer and McCulloch 2005).

Those who furnish goals with implementation intentions achieve higher goal attainment rates than those who act on the basis of mere goal intentions (Gollwitzer 1999; Gollwitzer, Bayer and McCulloch 2005). Implementation intentions have been shown to be beneficial for numerous types of goals, including goals that may seem inconvenient (e.g., students writing a report about Christmas Eve activities over the holiday break) (Gollwitzer and Brandstatter 1997), goals that are unpleasant to perform (e.g., women performing breast examinations and cancer screening (Orbell et al. 1997; Sheeran and Orbell 2000), and goals that are easy to forget (e.g., people taking vitamins) (Sheeran and Orbell 1999). Implementation intentions lead people to delegate more control of their goal-directed thoughts, feelings, and behaviors to the environment and engage in the specified behaviors more efficiently.

Implementation intention formation promotes goal achievement when the components of the plan are (1) precise, such that people have to think less about appropriate opportunities and responses, (2) viable, such that once the specified situation is encountered the specified responses can be executed more efficiently, and (3) instrumental, such that the specified situation allows for the determined action and the response facilitates goal achievement (Gollwitzer and Sheeran 2006).

### **Moderators of the Beneficial Effects of Implementation Intentions**

Whereas forming an implementation intention has been shown to be very beneficial for goal-achievement, there are circumstances when planning doesn't translate into an added benefit. Three key moderators of the positive effect of implementation intentions have been noted. First,

implementation intentions are more helpful when it is more difficult to initiate goal-directed behavior, and thus more crucial at times when people need to achieve difficult (versus simple) goals (e.g., Gollwitzer and Brandstatter 1997).

Second, implementation intentions do not work when the respective goal intention is weak. Thus, implementation intentions should no longer influence behavior when the respective goals are not activated. For instance, Orbell et al. (1997) reported that the beneficial effects of forming an implementation intention for performing a breast self-examination were observed only in those women who strongly intended to perform such an examination. Sheeran, Webb and Gollwitzer (2005) gave participants the task to be accurate when solving geometric puzzles. Some were primed with words that activated a goal to be quick, whereas others were primed with neutral words. Participants then adopted an implementation intention to be fast in solving the puzzles. Sheeran and his colleagues found that only when the superordinate goal of solving quickly was activated did the plan affect people's speed of solving the puzzles. Furthermore, 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 tend to disappear (Gollwitzer et al. 2002).

Thirdly, the strength of the implementation intention matters. Gollwitzer et al. (2002) manipulated the strength of the commitment to the implementation intention by telling participants that they were the kind of people who would benefit from either strictly adhering to their plans (i.e., high commitment) or staying flexible (i.e., low commitment). The latter group showed weaker implementation intention effects than the former.

## **Mindsets**

When people begin planning to execute the necessary goal-directed actions, they frequently adopt an implemental, as opposed to a deliberative, mindset (Gollwitzer 1996;

Gollwitzer, Heckhausen and Steller 1990). In the deliberative mindset, common when choosing among goals, they maintain a heightened receptiveness to all goal-relevant information. Once people adopt the implemental mindset and begin goal-directed activities, they engage in a narrower, increasingly selective way of information processing (Gollwitzer 2003). People process information related to the goal more selectively and disregard information they consider to be irrelevant or peripheral to the goal (Gollwitzer, Fujita, and Oettingen 2004). 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).

An implemental mindset has been shown to lead to better task performance and may be mediated by enhanced self-efficacy, optimistic outcome expectations, and perception of a task's ease (Armor and Taylor 2003; Gagne and Lydon 2001). Those in the implemental mindset tend to exhibit greater illusion of control (Gollwitzer and Kinney 1989; Taylor and Gollwitzer 1995) and are more likely to overestimate their probability of success (Puca 2001) than those in the deliberative mindset. Forming an implementation intention strengthens the implemental mindset and is often associated with the effects just discussed. How does forming an implementation intention and adopting an implemental mindset affect the relationship between the goal and its' means? The next section will discuss some of the research on goals-systems theory that speaks to this question.

### **Goal-Directed Pathways and the Links among Goals and Means**

When we think about most of our goals, regardless at how general of a level, we recognize that various means to achieve them are available. To be better able to focus on the task-at-hand, we often pursue one of these means. Recent research on goal-systems theory suggests that facilitative links exist between vertically-connected elements, such as a goal and its

respective means, whereas inhibitory links exist between lateral elements, such as competing goals or means (e.g., Shah, Friedman and Kruglanski 2002). The work of Kruglanski and his colleagues shows that to succeed in goal achievement, once a goal becomes associated with a particular means, other means to the same goal should be inhibited so they do not distract us.

Research on this topic also suggests that the size of the equifinality set, or the number of means linked to a particular goal, determines the extent to which people can choose between the means and substitute one means for another if the originally selected means becomes suboptimal. The size of the equifinality set also gives insight into the strength of the relationship between the goal and the respective means. People demonstrate greater commitment to a particular goal-directed means when they list one means as compared to several means. Therefore, the strength of a goal-means association can be reduced by the simultaneous presence of multiple alternative means (Kruglanski et al. 2002). Since forming a plan to make use of a particular means is likely to transfer commitment to a chosen means, it should also decrease commitment to other means. Thus, once an individual specifies a goal-directed means, he should become less willing to take advantage of other means linked to the same goal. The next chapter will discuss several streams of research that suggest that focusing on one cue (such as a specific means) might lead people to be so focused on this cue that they disregard other relevant cues (such as alternative means). It will then review existing research on the flexibility associated with forming an implementation intention.

## CHAPTER 3 FLEXIBILITY IN GOAL PURSUIT

### **Goal-Directed Perception**

Focus on a goal can lead people to miss other obvious aspects of their environment. In support of this argument, Simons and Chabris (1999) show that people can become so focused on their goal that they fail to perceive things in their environment that others would consider apparent. The authors asked participants to view a seventy-five second video of two three-player teams tossing basketballs. In this task, the participants' goal was to keep separate counts of the number of times the team wearing either black or white shirts bounced the ball or passed it through the air, ignoring the passes made by teams wearing shirts of the opposite color. Forty-five second into the video, a woman in a gorilla suit or a woman holding an umbrella walked through the group of players. Though the woman in the gorilla suit and the woman holding an umbrella were very vivid on the screen to those who were not focused on their goal to count the number of bounces and the passes, only fifty-four percent of the participants reported having seen the gorilla and only seventy percent of the participants reported seeing the woman with the umbrella.

Mack and Rock (1998) found similar results when participants failed to see an unexpected object on their screen because they were very focused on fulfilling a particular goal. However, when they informed participants that another object might appear or that they should watch for a secondary object, the participants always noticed the unexpected object. Thus, as seen in these examples, people often become blind and fail to notice things that are not directly relevant to what they're looking for unless they are specifically told to keep their eyes open. While these are only a few examples, they suggest that when people have active goals and are looking for something specific, their "view" often becomes narrower, and they are not likely to

see things that are not directly relevant to their current goal. This research suggests that out of all of the potential goal-relevant situations that an individual may encounter, the implementation intention makes the specified one more readily attended to and perhaps the ones not specified less readily attended to. However, research on opportunistic planning suggests that people should still be able to attend to the opportunities they didn't specify in their plan.

### **Opportunistic Planning**

Research on opportunistic planning has concentrated on the extent to which people can take advantage of other goal-directed opportunities once they associate a particular cue with their goal. Most of the findings in this stream of research have shown that people are indeed able to maintain their flexibility and thus can take advantage of these opportunities. For instance, Hayes-Roth and Hayes-Roth (1979) argue that an individual notices other paths to task achievement when these paths are available. They asked participants to plan a route to complete a set of errands in a specified time frame and recorded their responses using think-aloud protocols. The participants were given a list of twelve tasks they had to achieve, such as "pick up clothes at the dry cleaners" and "buy today's newspaper at the newsstand." The participants had to create a plan to achieve these goals using a map that showed neighborhood businesses where the tasks could be achieved. The authors suggest that people use multiple strategies for ordering the tasks, and more importantly, that they can shift strategies when appropriate. For example, if they order their tasks to achieve the most important ones first, but pass a location where a task of lower importance can be achieved, the goal of satisfying the tasks in order of convenience may be activated and thus the order of the tasks can be modified.

Hayes-Roth and Hayes-Roth (1979) provided a specific list of tasks throughout their experiment and all of the available opportunities to achieve the tasks were made accessible to the

participants from the time that they were first given the tasks. Unfortunately for most, life often lacks such simplicity. In reality, thoughtful deliberation is often required of people to decide how to achieve a goal or a task and people have to pay close attention to notice and to take advantage of other opportunities for achievement. Furthermore, many of our goals are broader and thus cannot be achieved in such a straightforward manner.

Research on the predictive encoding model (e.g., Palatano and Seifert 1997) also looks at individuals' likelihood to engage in opportunistic planning. Palatano and Seifert's investigations suggest that not all goal-directed opportunities will be recognized. Rather, only anticipated opportunities that are used to encode the goal into memory will lead to retrieval when the specified stimuli occur in the environment. In their studies, they presented participants with a set of goals, all of which could be accomplished using objects found in a typical dormitory room (e.g., retrieving an elastic band from a high bookshelf). Their first two studies show that (1) encoding a goal in terms of a specific object that can be used to achieve that goal increases the likelihood of recognizing an opportunity and (2) encoding at the specific object level can aid retrieval even when a new object is presented at a later time. However, they note that numerous objects would have to be associated with the goal at the encoding stage in order to increase the likelihood of recognizing new opportunities.

Palatano and Seifert's (1997) third study finds that preparing a specific plan in advance will only sometimes result in the recognition of related opportunities. However, a maximal strategy of associating a goal at encoding with *every* object that might be used in a plan to achieve the goal would require substantial cognitive effort. They suggest that predictive encoding of abstract plans rather than object-specific plans could result in considerable improvement in opportunity recognition with little additional cognitive effort. They conclude

that predictive encoding of abstract plans leads to significant improvement in recognition of opportunities to use concrete, plan-related objects to achieve pending goals.

They suggest that when a plan associated with a goal is defined more abstractly, an individual may be more likely to notice any one of a large number of opportunities. Indeed, they find that the predictive encoding of abstract plans leads to significant improvement in recognition of opportunities to use concrete plan-related objects to achieve pending goals. Thus, adopting an abstract plan should lead to an increased likelihood of recognizing specific cues (or opportunities) that could be used to achieve a goal. On the other hand, adopting a concrete plan should lead to an increased likelihood of recognizing the specified objects, and perhaps even very similar objects. If one could anticipate every daily situation and formulate a goal and plan link for each situation, assuming that the behavior is feasible as long as the individual carries it out, there would be an extremely high likelihood of achieving every daily goal. Since life isn't always that simple, it is important to be able to recognize a range of opportunities to achieve a goal to maximize the likelihood of goal-achievement. Prior research has provided evidence both for beneficial and detrimental effects of forming an implementation intention on flexibility and this evidence will be discussed in the next few sections.

### **Implementation Intentions and Flexibility**

Most of the studies which examined the effect of forming an implementation intention on flexibility suggest that forming an implementation intention allows people to remain open-minded, to notice, and to take advantage of other goal-relevant opportunities when they become available. Gollwitzer et al. (2007) describe a study conducted by Häfner (2000), in which participants were instructed to work on a word-rating task at a computer. The participants were also asked to help another research assistant by filling out a questionnaire at the end of the experiment. All accepted this second goal, and participants in the implementation condition

additionally furnished this goal with an implementation intention that was provided to them (“Yes, I’ll complete the questionnaire. And when the experiment is over, then I’ll fill out the questionnaire!”) During the word-rating task, a fake computer crash was set-up and the experimenter informed participants that the computer was experiencing a known software problem. The experimenter asked the participants to wait several minutes until the computer technician could fix the problem.

The experimenters suggest that the break provided a viable opportunity to fill out the questionnaire that was already given to the participants. The initial findings in this study concluded that significantly more participants in the goal intention condition (57%) than in the implementation intention condition (34%) used this opportunity to fill out the questionnaire. In a concluding questionnaire, they asked participants if they noticed that the computer breakdown offered a good opportunity to complete the questionnaire. Almost all of the participants (98%) responded that they noticed that the computer breakdown offered a good opportunity to do so, yet 38% of the participants said that they felt they were not allowed to work on it during that time. Once the participants who felt they were not allowed to work on the questionnaire while the computers were being fixed were removed from the analysis, a re-analysis of the data showed that there was no difference among participants who formed implementation intentions and those that did in their likelihood to take advantage of the unexpected opportunity.

Whereas the results of Häfner’s study were inconclusive, the studies discussed so far in this chapter have a common characteristic: the opportunities to achieve the goal by a superior means or the feedback that one should disengage from a means that does not seem promising were made extremely accessible. Thus, little effort was required for participants to notice other viable opportunities or to realize that the goal will not be achieved by the chosen means. In

further support of this point, Jaudas and Gollwitzer (2004) (discussed in depth in Gollwitzer et al. 2007), presented participants with five different icons, each with a different point value. They showed participants two icons on the screen, side by side, and participants had to select the icon with the greatest amount of points as quickly as possible. All of the participants were told that the flower icon was worth the maximum number of points (50). The participants who only formed a goal intention adopted the goal to get as many points as possible, while those who formed an implementation intention also adopted the plan so that if the flower icon would appear, they would “quickly snatch the 50 points!”

They found that the participants who formed an implementation intention were quicker to choose the flower icon when it was available, while their likelihood of choosing the icon with the highest points when the flower icon was not available was not decreased. They later presented participants with a sixth icon that was worth more than any of the previous five icons. They noted that there was no significant difference between the likelihood of participants in the goal intention and the participants in the implementation intention conditions to choose the sixth highly-valued icon when it was available. Therefore, they argue that forming an implementation intention is beneficial to goal achievement, and when a new opportunity to achieve a goal is available, people are flexible enough to take advantage of it. However, as noted earlier, the opportunity presented to the participants in this study was very straightforward. It seems almost impossible for them to not notice the sixth icon as it was presented to them, and it was very transparent that this was a better way for the participants to achieve their goal. Furthermore, no significant effort was required for participants to switch their path to goal-achievement, the value of the new path was very clear, and the goal was not very relevant to the participants’ well-being.

Gollwitzer et al. (2007) discussed another study conducted by Jaudas and Gollwitzer (2004), in which they examined individuals' likelihood to disengage from a plan with low instrumentality. In this study, the participants had to find the shortest way through a set of ten mazes as quickly as possible. They led participants who formed an implementation intention to adopt a plan with little instrumentality, where the plan would only lead them to the correct solution three out of ten times. Whether or not the participants received feedback was also manipulated. They found that when negative feedback was provided, there was no significant difference between the performances of the two groups of participants. However, when participants received no feedback, those who formed a goal intention found the shortest way through the maze quicker than those who formed an implementation intention. This study serves as evidence that forming an implementation intention allows people to maintain flexibility and open-mindedness when they receive negative feedback, allowing them to adjust their plan accordingly. On a daily basis, it is rare that we receive such direct feedback regarding the extent to which our chosen plan is effective. Since the authors found that forming implementation intentions actually hurt the participants' flexibility when no feedback was provided, it is possible that under circumstances when feedback is not clear or is not at all provided, forming an implementation intention and adopting a plan that may not lead to goal achievement may be worse than not forming an implementation intention at all. This possibility will be addressed in more depth in the next section.

### **Implementation Intentions and Rigidity**

As noted earlier, if-then plans are thought to enhance the accessibility of the *specified* critical situation and lead to an efficient execution of the *specified* response. Whereas this dissertation and the existing research on implementation intentions seem to have a large overlap, there are key differences worth noting. I agree that forming an implementation intention leads

people to be more likely to take advantage of the means that they specified when these means are available. Yet, I examine circumstances when forming an implementation intention leads them to be less likely to take advantage of the means that are not identical to those which they specified. For the goal-relevant means that an individual didn't specify, accessibility of a situation in which they could engage in a goal-directed response might be low.

Relative to people who do not form an implementation intention, those who do should become more focused on their specified means, but less focused on other goal-relevant means. A recent paper examined individuals' likelihood to notice alternative opportunities to achieve their goal once they form an implementation intention. Parks-Stamm, Gollwitzer, and Oettingen (2007) asked participants to listen to a story and to type of 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" and "mouse." One-half of the participants were forewarned of the "Laura" and "mouse" targets and the other half were not. The participants that were aware of the "Laura"/"mouse" target words were asked to form an implementation intention. Specifically, they made 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 people may not notice alternative opportunities to achieve their goal if they're focused on responding to opportunities specified in their implementation intention. Furthermore, even if people notice an alternative opportunity, they may choose not to take advantage of it. This research shares some similarities with research on selective attention discussed earlier (e.g. Mack and Rock 1998; Simons and Chabris 1999), and suggests that people may not notice alternative opportunities to achieve their goal if they're focused on finding the

opportunity they specified. Furthermore, even if they notice an alternative opportunity to achieve their goal, they might be so committed to their specified means or feel that the alternative means are not very valuable, and thus choose not to take advantage of it.

When people form an implementation intention and adopt an implemental mindset, they become more narrow-minded and think about how they can execute the behavior they committed themselves to. Yet how plan-focused should we be once we specify our situation and intended behavior? Research examining how people construe their goals and the mindsets they can adopt when goal-relevant opportunities may be available and plans may have some recommendations. Chapter 4 will review some of this research and present some possible explanations as to why forming an implementation intention and thinking abstractly versus concretely can affect willingness to take advantage of other goal-directed opportunities.

## CHAPTER 4

### ACTION IDENTIFICATION AND THE “OPTIMAL” MINDSET

#### **Action Identification Theory**

Vallacher and Wegner (1985) note that “planning involves knowing what one is doing in the broadest possible way and having the flexibility to accommodate changing circumstances and other factors that promote disruption” (p.111). Their theory of action identification states that an action can be identified in multiple ways, from high-level action identities that signify *why* the action is performed (e.g., dining at a restaurant could be identified as socializing with friends) to low-level action identities that specify *how* the action is performed (e.g., dining at a restaurant could be identified as putting a fork in ones’ mouth). High level identifications are conceptualized as abstract, goal representations that support the assessment of goal pursuit opportunities. Low level identifications are conceptualized as concrete, means representations that dictate how to execute a specific set of behaviors (Vallacher and Wegner 1987, 1989).

Higher level action identities generally allow greater flexibility than lower level action identities. However, when it is insufficient for people to consider actions at a higher, abstract level, they must consider the action at a lower, concrete level identity and focus on the how-to aspects of the behavior (Vallacher and Wegner 1987; Vallacher et al. 1992). Forming an implementation intention leads people to think of the necessary goal-directed actions they have to perform at a lower-level.

According to action identification theory, experience changes mental representations (Vallacher and Wegner 1985, 1987). When people first attempt to perform a difficult action, lower level action identification is necessary, since lack of experience increases focus on the details of performing the action. As these lower level actions are mastered, they can begin to integrate these actions into larger action units that they identify at higher levels. With experience,

actions are more likely to be performed more smoothly and require less attention and effort, thus becoming routinely identified at a higher level (Vallacher and Wegner 1985). Action identification theory is just one of the theories that suggest that the level at which people think about their goals and the behaviors which are necessary to achieve them should affect their goal-directed actions.

### **Control Theory**

Similarly, control theory presents a framework which acknowledges the hierarchical structure of goals (Carver and Scheier 1982). Higher-level goals are at the top of the hierarchy, and are neither specific in terms of actions to be performed nor specific in terms of the context in which those actions are to be performed, but focus on the outcomes of those actions. Simple behaviors are at the lower end of the hierarchy; are narrowly defined, are at a low level of abstraction, and are specific in terms of actions and context. This theory suggests that lower level behaviors can lead people to achieve higher level goals.

Furthermore, control theory represents a general approach to understanding how goals work in controlling behavior (e.g., Carver and Scheier 1981; Locke and Latham 1990). This theory suggests a hierarchy of levels of control, with various levels of standards or goals arranged from the most concrete and narrow to the most abstract and broad organizing principles. Goals and standards can be characterized at different levels within this hierarchy, and people can differ as to the level at which they characterize their goals within the hierarchy.

In summary, once an individual forms an implementation intention and is faced with an alternative goal-relevant opportunity, he can be thinking of the goal and the plan at a higher or a lower level, thus, more abstractly or more concretely. Whereas most of the research on the effect of forming an implementation intention on flexibility reviewed thus far has suggested that people are able to notice and take advantage of a variety of goal-directed opportunities, recent research

by Park-Stamm et al. (2007) leads us to think that this is not always the case. There may be situations in which forming an implementation intention can have a detrimental effect on open-mindedness when other goal-directed opportunities become available. In particular, research such as that of Palatano and Seifert (1997) suggests that the abstractness or concreteness with which people think about their goal and goal-directed actions should affect their willingness to engage in opportunistic planning.

In this dissertation, I suggest that after forming an implementation intention, the level of thought abstractness or the level of action-identity can affect the degree of open-mindedness and flexibility. In particular, I argue that an increased abstractness of thought after forming an implementation intention will lead to an increased likelihood to take advantage of a greater variety of goal-directed means. Why might this occur? Research suggests several possible explanations. First, forming an implementation intention and thinking about the goal or the means associated with it abstractly versus concretely can affect the perceived instrumentality of the alternative means. If the means do not seem instrumental, they are more likely to be devalued, and thus less likely to be utilized. This work suggests that forming an implementation intention and thinking concretely and narrowly without focusing on the overarching goal should lead people to devalue alternative goal-directed means. Also, having thought little about the possible ways to achieve the goal and focusing entirely on the overarching goal should lead people to focus less on the means, and thus also see them as less instrumental and less valuable.

Second, forming an implementation intention leads to a strong commitment to a specified means. When fewer means are associated with the goal, the transfer of commitment between the goal and the means should be stronger (Kruglanski et al. 2002). A strong commitment to the means should lead people to be less likely to take advantage of other goal-relevant opportunities,

unless they're led to think about their overarching goal prior to making a decision to take advantage of these opportunities. Moreover, not thinking about ways to achieve the goal at all and staying focused on the overarching goal should lead people to be less committed to taking action, leading them to be less likely to take advantage of goal-relevant opportunities compared to people who did not form a plan but considered how they could achieve the goal.

Even though each of these explanations is not explicitly tested in this dissertation, it is important to understand the potential underlying process. The underlying process will be explicitly examined in future research. The rationales for the possible explanations will be examined in the next several sections.

### **Possible Explanations**

#### **Possible Explanation 1: The Devaluation Effect**

I would like to suggest that once a person forms an implementation intention and commits himself to a specified means, alternative means may seem less instrumental and thus more likely to be devalued. These means should be evaluated lower and be less likely to be utilized.

When might devaluation happen? According to Brendl, Markman and Messner (2003), the utility of an object varies as people's goals relating to that object change in intensity. In particular, they find that activating a focal need (e.g., save money) makes objects unrelated to that need (e.g., doing homework) less valuable. This devaluation effect is prevalent when objects are neither perceived as instrumental nor disinstrumental to the focal need or goal. One of their key findings is that objects that can be conceptualized as instrumental may not automatically be categorized as such. In their Study 1, Brendl and his colleagues found that when participants who are smokers were craving a cigarette (high need to smoke), they bought significantly fewer raffle tickets if the ultimate prize was cash (versus cigarettes), even though cash could ultimately be

used to purchase cigarettes. They also found that participants with a high need to eat gave significantly lower preference ratings to nonfoods than did those with a low need to eat.

I suggest that devaluation of alternative means after forming an implementation intention is most likely if a person thinks concretely and maintains a narrow-focus when the alternative opportunities to attain the goal become available. On the other hand, if a person thinks abstractly after forming an implementation intention, his thoughts should be focused on both the overarching goal (i.e., why he wants to achieve the goal) and on the selected means. Focusing on the overarching goal should lead him to realize the value in the alternative means, and thus lead to a greater likelihood to take advantage of these means to achieve their goal.

When a person does not form an implementation intention, does not think about ways to achieve his goal, and remains in an abstract mindset when goal-directed opportunities become available, means to achieve the goal are not likely to seem very relevant and thus are likely to be devalued. On the other hand, if an individual does not form an implementation intention, yet adopts a concrete mindset when faced with goal-directed opportunities, he has thought about ways to achieve the goal yet has not committed himself to any specific means, and thus is likely to assign a higher value to a variety of means and perceive them to be more instrumental.

### **Possible Explanation 2: Commitment and Focus – The Goal or the Means**

Another possible explanation for the hypotheses suggested in this dissertation is that people may become so committed to the specified means when they formed an implementation intention that even when they perceive alternative means to be valuable, they do not take advantage of them. This explanation would be supported by work on cognitive dissonance theory and goals-systems theory.

Cognitive dissonance theory suggests that after a decision is made, the attractiveness of the chosen alternative should increase and the attractiveness of the non-chosen alternatives

should decrease (Brehm 1956; Festinger 1957). Similarly, when an individual specifies which means to pursue, non-specified means might seem useful but may become unattractive for other reasons (e.g., the means seems too difficult to implement). In line with cognitive dissonance theory, Gollwitzer's work suggests that when people make a conscious commitment to an action, they are much more likely to take actions congruent with their commitment, and thus much less likely to take actions that may not be as directly aligned with it (e.g., Gollwitzer 1999).

According to goal systems-theory, goals are representational structures connected to representations of the means that support goal satisfaction (Kruglanski et al. 2002). The strength of a goal-means association can be reduced by the simultaneous presence of multiple alternative means (Kruglanski et al. 2002). Similarly, Markman, Brendl, and Kim (2007) suggest that there is a limited amount of motivational energy in the goal system, and thus increasing activation in one end of the system requires decreasing activation elsewhere. Since forming a plan to make use of a particular means is likely to transfer commitment to and increase activation of a chosen means, it should also decrease commitment to and activation of other means.

Overall, forming an implementation intention leads people to engage in a narrower, increasingly selective way of information processing (Gollwitzer 2003). When people are better able to process information related to goal implementation, they disregard information that they feel is irrelevant and peripheral (Gollwitzer, Fujita and Oettingen 2004). As a consequence, they may disregard alternative means, if they perceive them peripheral and unnecessary. The studies in this dissertation examine whether adopting an abstract mindset can help people become more open-minded toward other means.

## CHAPTER 5 OVERVIEW OF EXPERIMENTS

With the following set of studies, I will look at the role that action-identity and abstractness of mindset after forming an implementation intention plays on individuals' willingness to take advantage of a variety of means to goal-achievement. I examine a goal that is almost always highly valued but not as often achieved, and is very relevant in today's society considering the exponential growth of debt among Americans – the goal of saving money. Recent work on the shopping momentum effect (Dhar, Huber and Khan 2007) has shown that even a simple action such as making an initial purchase leads people to adopt an implemental mindset, leading them to make more subsequent purchases than they would have made otherwise. In today's society, where accumulating debt has become a major concern for many households, is it possible that forming a money-saving plan could be detrimental?

I suggest that forming an implementation intention allows people to maintain an open mind and be willing to take advantage of a variety of goal-directed means, but only when they think at a higher, more abstract level about their goal when presented with alternative goal-achievement opportunities. I investigate this proposition using the common consumer goal of saving money. Study 1 investigates the influence of forming an implementation intention on a consumer's willingness engage in an impulse purchase when in a concrete or abstract mindset. Study 2a and 2b investigate the influence of forming an implementation intention on a consumer's willingness take advantage of a wide variety of money saving opportunities when in a concrete or abstract mindset. Study 3 extends these findings by altering the time frame in which goal consistent, out-of-plan behaviors can be pursued. Temporal construal theory predicts that people will think more concretely (abstractly) when thinking of events that are temporally current (in the future) (e.g., Trope and Liberman 2000). Study 4 further extends the findings by

encouraging a person to adopt a prevention focus (concrete mindset) or promotion focus (abstract mindset) when assessing the appeal of goal consistent, out-of-plan behaviors. Finally, Study 5 examines the effect of the adopted mindset when participants specify implemental plans that include single versus multiple means. The next several chapters will discuss the hypotheses, methodology and findings of each of the studies.

## CHAPTER 6 EXPERIMENT 1

I suggest that understanding the mindset that people adopt when they are exposed to a variety of goal-directed means is crucial to understanding their openness to these means once they form an implementation intention. Whereas I will examine the impact of the adopted mindset on individuals' openness to goal-directed means in the next few studies, I first need to examine the impact of the adopted mindset on everyday saving versus spending behavior. Most consumers are encounter daily opportunities to make impulsive purchases and thus spend (versus save) their money. Such situations are especially common at grocery stores or department stores when inexpensive items such as magazines or snacks are stocked at checkout, restaurants where the server suggests a new appetizer that a diner may not have considered, or even at a salons and spas where beauty products are recommended and suggested by the staff at checkout. Study 1 examines a very typical impulsive behavior, purchasing snacks, with the added control of the laboratory setting.

### **Hypotheses**

- **H1a:** When participants form an implementation intention to save money in a specified way, adopting a concrete (versus an abstract) mindset will lead them to be less likely to take advantage of an alternative money-saving opportunity (e.g., avoiding an impulse purchase).
- **H1b:** When participants do not form an implementation intention to save money in a specified way, adopting a concrete (versus abstract) mindset will lead them to be more likely to take advantage of an alternative money-saving opportunity (e.g., avoiding an impulse purchase).

### **Method**

One hundred and twenty-seven participants partook in this study in exchange for extra credit. This study employed a two (Form Implementation Intentions: no, yes) by two (Mindset: concrete, abstract) design.

The procedure involved a series of studies that were presented using personal computers and the 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 informed that, as in all of the other sessions they participate in for extra credit, this session includes several studies put together by various corporations, faculty and graduate students at the University. Participants were told that Target, a national retailer, was sponsoring the first study and that Target had provided compensation of \$3. Participants were handed \$3 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 liked and disliked about the retailer.

In a purportedly new study, the cover story informed the participants that our prior research at the University has concluded that saving money is very important to University students. I told them that I am interested in finding out what types of things students are trying to save for and how they save money. The remainder of the study was on the computer as well. To adopt the savings goal, all of the participants formed goal intentions. They were given several minutes to read the following instructs and to respond accordingly:

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. They were asked to form a realistic plan that they felt committed to and which they would really implement. They saw the following set of instructions:

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 what exactly 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 told that I was also interested in how people process different letters and words, and were asked to list as many words as they could which had the letter “d” in the middle. 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 nor at the end of a word. Please list as many such words as you can think of within several minutes.

All of the participants were given approximately one minute after reading the instructions to perform the appropriate tasks, yet they could take as much time as they felt was necessary. Next, they completed an unrelated filler task for approximately five minutes to make sure that they indeed saw the study components as separate, unrelated studies.

Next, they were presented with another study that asked about their thoughts relating to saving money. In this part of the study, half of the participants were directed to think increasingly abstractly and thus to adopt a more abstract mindset, while half were directed to think increasingly concretely and thus adopt a more concrete mindset. The mindset manipulations used were adopted from Freitas, Gollwitzer and Trope (2004).

The abstract mindset manipulation informed participants that I am interested in why they save money, whereas the concrete mindset manipulation informed participants that I am interested in how they will save money. The participants were asked to write in 1-2 sentences about how or why, depending on their randomly assigned condition, they will save money. Then, they were shown these sentences again, and asked how or why they would do that, between-

subject. This laddering process was then repeated one more time. The participants were given as much time as they wanted to write their responses.

The key dependent variable was presented in the last alleged study of the session. This study was titled “Marketing Lab Pretest of Student Choices.” The participants were told that the Marketing Department is interested in selling snacks to participants during the extra credit studies, and they are now doing a pretest of what type of snacks, if any, students would like. The participants were informed that today is one of the days that they are pretesting this idea, and that they have the opportunity to purchase snacks at 75 cents each. They were not obligated to purchase any snacks, but could select as many as they wanted. A pretest with a different group of students determined the type of snacks that students generally enjoy. In the pretest, the participants were presented with ten options of snacks with varying levels of healthiness, and asked how often they would purchase these snacks if given the opportunity and each of the snacks was the same price. I selected two items that were highly rated and were perceived to be somewhat healthy and two items that were also highly rated, and not as healthy. The department was pretesting the type of snacks, if any, students would like. The current session was one of the pretest sessions, so they would have the opportunity to purchase snacks. Participants were presented with 4 individual serving options: Snickers candy bars, Chips Ahoy chocolate chip cookies, Pepperidge Farm goldfish crackers, or Nature Valley granola bars and were told that they could purchase as many as they wished at a cost of \$.75 each, but were not obligated. They had to select, on the computer, how many of each snack they wanted. Once the participants made their selections, the experimenter delivered the snacks and collected their money. Participants completed an unrelated questionnaire during this period. At the end of the study, participants were asked on a scale of 1 to 9 how much they like snacks that were similar to the ones offered

in the session, with endpoints of “Do not like them at all” and “Like them very much.” The experimental session ended by asking participants to list their ideas about the purpose of the studies.

## Results

The results of experiment 1 are shown in figure 1. An ANOVA revealed a significant interaction of implementation intention and mindset on the participants’ likelihood to spend money on snacks ( $F(1, 123) = 17.88, p < .01$ ). When participants adopted a lower-level, concrete mindset after forming an implementation intention, they became less likely to save the \$3 than participants who did not form an implementation intention ( $M_{\text{NoIntention}} = \$2.79$  saved,  $M_{\text{Intention}} = \$2.41$  saved;  $F(1, 123) = 4.14, p = .04$ ). When participants adopted a higher-level, more abstract mindset after forming an implementation intention, they became more likely to save the \$3 than participants who did not form an implementation intention ( $M_{\text{NoIntention}} = \$2.06$  saved,  $M_{\text{Intention}} = \$2.81$  saved;  $F(1, 123) = 15.39, p < .01$ ). (See Figure 6-1).

None of the participants guessed the true purpose of the study. Furthermore, no participant mentioned a decrease in impulse purchasing as part of their plan. Most participants instead focused on how they would limit going out to eat or drink or how they would order cheaper items on a restaurant menu, whenever possible. Thus, declining the opportunity to purchase a snack was a goal-consistent, out-of-plan behavior.

## Discussion

Study 1 examined how thinking abstractly or concretely after forming an implementation intention affects individuals’ saving behavior. In particular, it looked at the extent to which people make impulse purchases since spending money impulsively ultimately leads people to save less. Whereas buying inexpensive snacks is not likely to be too much of a burden on

anyone's budget, it is symbolic of the way in which people spend (versus save) money when discretionary purchasing opportunities are available.

I found that for people to remain open-minded after they formed an implementation intention, they needed to adopt an abstract mindset and think more broadly about their goal. Adopting the abstract mindset after forming an implementation intention led them to be more likely to notice the means that they did not specify, and thus more likely to notice that saving money and avoiding impulsive purchases behavior would help them achieve their goal faster. If participants did not form an implementation intention and remained in an abstract mindset when opportunities to take advantage of goal-directed means presented themselves, they became so focused on the overarching goal that they were not as interested in executing the goal-directed means.

On the other hand, when people did not form an implementation intention, thinking concretely led them to think about specific means they could take advantage of to reach their goal, but did not lead them not commit themselves to any of the means in particular. Thus, it led them to be more likely to take advantage of goal-directed means such as limiting impulse spending. Lastly, forming an implementation intention and specifying how to achieve the goal and later adopting a concrete mindset led people to be overly focused on their plan and the detailed aspects of executing the specific goal-directed behaviors that they became less focused on the overarching goal and thus less likely to take advantage of alternative pathways to reach their overarching goal. Thus, they were less likely to avoid the impulsive behavior and to save money.

The results of this study suggest that it is possible that forming an implementation intention, and remaining in a concrete mindset, leads people to be so plan-focused that they do

not notice that avoiding impulse purchasing would be a helpful means to further their goal-progress. It is also possible that forming an implementation intention leads people to feel such a strong sense of commitment to their specified means that they become less likely to take advantage of the saving money tactic of avoiding impulsive purchases. Lastly, they could also become less likely to take advantage of alternative means because they devalue these means once they specify a means. Experiment 2 will begin to differentiate between these explanations.

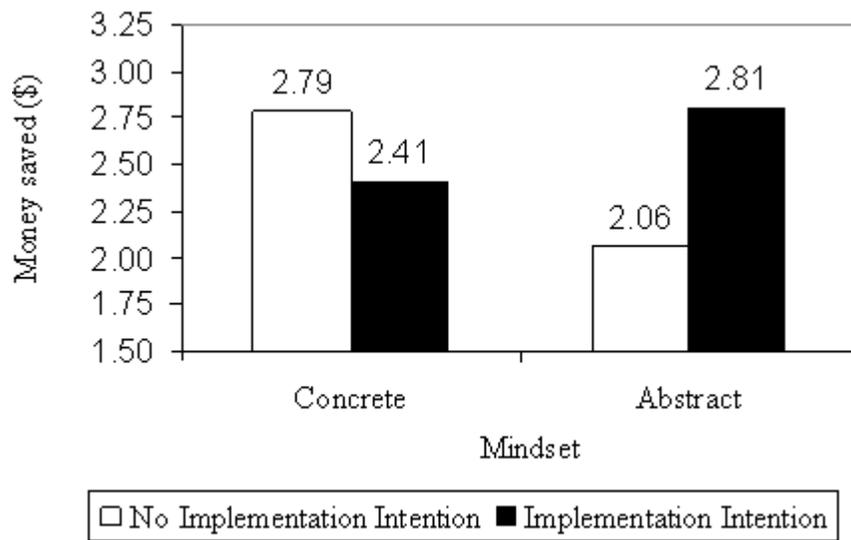


Figure 6-1. Effect of mindset after forming an implementation intention on the amount of money saved.

## CHAPTER 7 EXPERIMENT 2

The goal of Study 2 is to further the understanding of why forming an implementation intention could lead people to be less likely to take advantage of goal-directed opportunities. Research on inattention blindness (e.g., Mack and Rock 1998) and goal-directed perception (e.g., Janiszewski 2008) suggests that people might become so focused that they don't notice other clearly visible opportunities. Study 2 will examine this explanation by directly presenting participants with a list of goal-directed means they could pursue to save money. When the goal is to save money, people should be willing to take advantage of as many means as possible, especially if they are not mutually exclusive. In this study, if I find that after forming an implementation intention, people are willing to take advantage of alternative goal-directed means once these means are made accessible, then I can assume that forming an implementation intention leads them to not think about or not notice alternative means until they are blatantly available. On the other hand, if after forming an implementation intention, people are still not willing to take advantage of alternative goal-directed means even when they are clearly presented, then narrowed perception is not likely to be the explanation for our findings.

I suggest that when people form an implementation intention, they will become committed to a specified means. Commitment should encourage people to be narrow-minded in their willingness to take advantage of alternative goal-relevant means. In Study 2a and Study 2b, I examine the effect that an abstract (versus a concrete) mindset has on their likelihood to take advantage of a variety of presented, goal-directed means once they form implementation intentions and on their intentions to behave in a way aligned with their savings goal.

## Study 2a

### Hypotheses

- **H2a:** When participants form an implementation intention to save money in a specified way, adopting a concrete (versus an abstract) mindset will lead them to be less likely to take advantage of alternative money-saving opportunities, even when these opportunities are transparent and are not mutually exclusive.
- **H2b:** When participants do not form an implementation intention to save money in a specified way, adopting a concrete (versus abstract) mindset will lead them to be more likely to take advantage of alternative money-saving opportunities, even when these opportunities are transparent and are not mutually exclusive.

### Method

This study had one hundred and seventy-five participants and employed a two (Form Implementation Intentions: no, yes) by two (Mindset: concrete, abstract) design.

This experiment was presented on the computer. The cover story was the same as in the savings portion of Study 1. Participants were told that we were interested in what types of things students try to save for and how they save money. Similar to Study 1, all of the participants formed goal intentions. Next, half formed an implementation intention while half performed a word-processing task listing words that had the letter “d” in the middle. Then, just as in Study 1, half of the participants were directed to think increasingly abstractly (think about *why* to save money), and thus to adopt a more abstract mindset, while half were directed to think increasingly concretely (think about *how* to save money), and thus adopt a more concrete mindset.

Next, the participants were asked to consider some possible ways to save money. The means presented in this study were pre-tested with a smaller group of participants, where the participants responded with how likely they or their friends would take advantage of each of the means. The pretest also asked participants to list some novel means that they or their friends could use to save money. I selected a variety of means from the list. The eight goal-directed means were presented on the screen one at a time. These means included

- When shopping, purchase more groceries that are on sale that week
- Cook at home more
- Limit dining in restaurants
- Donate old clothing to get a tax break
- Stock-pile when non-perishable groceries are on sale
- Combine errands in one trip to save money on gas
- Decrease how much you purchase on impulse
- Significantly decrease how much new clothing you purchase

Participants were asked their likelihood of taking advantage of each of the means in the upcoming month. Each means was rated using a 1 – 9 scale, with 1 = “not at all likely to use this method” and 9 = “very likely to use this method” as the endpoints. Thus, the key dependent variable in this study was the participants’ likelihood to take advantage of various means to reach their goal. Since their goal was to save money, the participants should be willing to consider as many means as they could that would save them money, especially since the means suggested were not mutually exclusive and were not too difficult to implement (e.g., dining out less, purchasing less designer clothing, limiting impulse purchases).

## Results

The Cronbach alpha for the eight means was .65, so I collapsed across all of the means to create an aggregate measure of the likelihood to take advantage of a presented means. An ANOVA revealed a significant interaction of forming implementation intentions by mindset on the participants’ likelihood to take advantage of a means ( $F(1, 171) = 8.85, p < .01$ ). When participants adopted a concrete mindset, forming an implementation intention resulted in a lower willingness to take advantage of means than not forming an implementation intention ( $M_{\text{NoIntention}} = 6.20, M_{\text{Intention}} = 5.66; F(1, 171) = 4.80, p = .03$ ). When participants adopted an abstract mindset, forming an implementation intention resulted in a greater willingness to take advantage of means than not forming an implementation intention ( $M_{\text{NoIntention}} = 5.73, M_{\text{Intention}} = 6.25; F(1, 171) = 4.10, p = .05$ ). (See Figure 7-1).

I hypothesized that these effects would still hold when I removed the means that the participants mentioned when forming an implementation intention. I coded the means the participants listed as the same as or as different from each of the eight means that were presented to them, and removed the means each participant listed from the analysis. Thus, for some of the participants, all of the means were included in the analysis, but for most, one or two of the directly mentioned means were excluded from the calculation of the average likelihood to take advantage of the goal-relevant means. I found that when the mentioned means were removed from the analysis, the interaction of forming an implementation intention by adopted mindset remained significant ( $F(1, 171) = 8.94, p < .01$ ). Analyzing the participants' likelihood to take advantage of the means they did not mention, I found that when participants adopted a concrete mindset, forming an implementation intention resulted in a lower willingness to take advantage of a means than not forming an implementation intention ( $M_{\text{No Intention}} = 6.20, M_{\text{Intention}} = 5.36; F(1, 171) = 11.22, p < .01$ ). When participants adopted an abstract mindset, I found a directional effect but no significant difference in the willingness to take advantage of a means not mentioned in their plan between participants who formed an implementation intention and those who did not ( $M_{\text{No Intention}} = 5.73, M_{\text{Intention}} = 5.98; F(1, 171) = .93, p = .34$ ).

When I conducted this study, I selected some means that seemed popular amongst the pre-test participants and others that seemed less popular. I believed I would find different effects for typical versus atypical means. In particular, I hypothesized that the predicted effects would hold stronger for atypical means rather than typical means. In a separate pretest, I asked participants to rate the typicality of the eight means. I then divided the means in this study into four typical and four atypical means. The four typical means included cook at home more, purchase less on impulse, limit how much you dine in restaurants, and limit how much new

clothing you purchase. The four atypical means included donate clothing to get a tax break, stock-pile on groceries, purchase groceries when they are on sale, and combine errands to save money on gas. The three-way interaction (implementation intentions x mindset x means typicality) was not significant ( $F(1, 171) = 2.19, p = .14$ ).

## **Discussion**

The results of Experiment 2a replicate those of Experiment 1. Forming an implementation intention decreases (increases) the attractiveness of goal-relevant behaviors when a person is in a concrete (abstract) mindset. In this experiment, the means were directly presented and were obviously a method of saving money. The fact that the attractiveness of the means was still influenced by the experimental manipulations suggests the results were not a consequence of the participant's failure to recognize that the means were efficacious. Instead, it appears that, on average, goal-relevant means are being devalued (valued) as a consequence of forming an implementation intention and thinking concretely (abstractly) at the time these means are evaluated.

I also conducted a supplementary analysis in which I removed the means which participants mentioned in their plan. When participants adopted a concrete mindset, I found a significant difference in the likelihood to take advantage of goal-directed means between participants who formed and those who did not form an implementation intention. This effect was not significant when participants adopted an abstract mindset. However, participants in only two of the four conditions formed an implementation intention. Thus, for the purpose of this analysis, only the means in these conditions were affected when the means which were mentioned in the implementation intention were removed. Not surprisingly, the means that participants mentioned when they formed an implementation intention were often more typical means which received the highest ratings from participants in all of the conditions (e.g., limiting

dining in restaurants). Thus, the mean for the likelihood to take advantage of the presented goal-directed means became lower for participants who formed an implementation intention when their likelihood to take advantage of typical means were removed from the analysis yet remained the same for participants who did not form an implementation intention.

Similarly, I found no significant effect of forming an implementation intention on participants' willingness to take advantage of typical means when they adopted an abstract mindset. The same reasoning would hold for why I found no difference of the likelihood to take advantage of not-mentioned means between the participants who formed and those who did not form an implementation intention when they adopted an abstract mindset.

It is possible (though unlikely) that participants felt that the money-saving strategies might not save them a lot of money for the effort required (e.g., donating clothes to get be able to write it off when doing taxes). Whereas every cent counts when saving money, and participants should have been willing to take advantage of as many goal-directed means as possible, it is often wisest to save in the categories that you feel have the highest potential to help you save the most amount of money. Study 2b examined this issue in greater depth.

### **Study 2b**

A pretest was used to identify savings activities with the highest potential. The sample was drawn from the same subject pool used in study 2a. Participants were asked to think about their daily activities and to write down the ways they thought they and their friends could save the most amount of money. Their responses could be categorized in three key groups. These groups included dining out, going out with friends, and shopping at malls. It is important to see how forming an implementation intention affects individuals' willingness to save money in categories where they feel they have the potential to save the most.

## Hypotheses

- **H3a:** When participants form an implementation intention to save money in a specified way, adopting a concrete (versus an abstract) mindset will lead them to be less likely to lower their spending in spending categories with great money-saving potential.
- **H3b:** When participants do not form an implementation intention to save money in a specified way, adopting a concrete (versus abstract) mindset will lead them to be more likely to lower their spending in spending categories with great money-saving potential.

## Method

This study had fifty-seven participants and employed a two (Form Implementation Intentions: no, yes) by two (Mindset: concrete, abstract) design.

The methodology utilized in this study was exactly the same as that of Study 2a. The participants saw the same cover story, formed goal intentions in the same way, and then either formed implementation intentions or engaged in a letter-processing task. Just as in Study 2a, the participants completed either the abstract or the concrete mindset manipulation where they wrote about why or how they would like to save money.

Whereas Study 2a examined individuals' willingness to save money by asking the participants about their likelihood to take advantage of a variety of means, the questions in this study asked participants to think about their current spending habits with regards to saving or spending in each of three key categories and to evaluate their spending for the upcoming month relative to their current spending trends in these categories. Thus, the key dependent variable was how much money the participants plan to spend in the upcoming month in the three categories in which they could save a significant amount of money. These categories included dining out, going out with friends, and shopping at malls. The three questions were presented one-by-one on the computer with a scale of 1-9 with 1 = "Significantly less money than in the previous month" and 9 = "Significantly more money than in the previous month" as the endpoints.

## Results

The three dependent variables had a Cronbach alpha of .6, so they were collapsed into one aggregate saving measure. When looking at the aggregate measure of planned saving, an ANOVA revealed a significant interaction of forming an implementation intention by mindset on participants' plan to save in the three key categories in the upcoming month ( $F(1, 53) = 7.40, p < .01$ ). Using relative saving in the three categories as the dependent variable, a higher means indicates that participants plan to save less money in the upcoming month compared to the prior month.

The data presented below has been reverse-coded, such that a higher number signifies a higher intended saving. I found that when participants adopted a abstract mindset after forming an implementation intention, they, on average, intended to save more money in the upcoming month compared to the prior month than participants who did not form an implementation intention ( $M_{\text{Intention}} = 4.52, M_{\text{NoIntention}} = 3.64; F(1, 53) = 3.26, p = .04$ ; one-tailed). On the other hand, when participants adopted a concrete mindset after forming an implementation intention, those who formed implementation intentions intended to save less in the upcoming month, compared to the prior month compared to participants who did not form an implementation intention ( $M_{\text{Intention}} = 3.90, M_{\text{NoIntention}} = 4.87; F(1, 53) = 4.18, p = .05$ ). (See Figure 7-2). When looking individually at each of the three important saving categories, the pattern of planned saving is similar for each. (See means in Table 7-3).

## Discussion

The prior set of studies show that forming an implementation intention and then thinking abstractly when considering a variety of means to goal achievement leads to more open-mindedness and a greater likelihood to take advantage of a variety of goal-directed means. I tested this hypothesis using several dependent variables: the likelihood to take advantage of any

or all of eight presented means to save money and the intended change in spending patterns in each of three categories which are key to students trying to save money.

In each of the categories, when participants formed an implementation intention and adopted the concrete mindset when determining their saving behavior for the upcoming month, they were likely to save less in comparison to those in the abstract mindset. When participants did not form an implementation intention and adopted the concrete mindset, they were less likely to save less in comparison to those in the abstract mindset. While I have shown that abstract and concrete thinking after forming (or not forming) an implementation intention can affect our saving intentions and behavior, under what circumstances do we naturally think more abstractly or more concretely about our plans? The next two studies will examine some circumstances by looking at individuals' willingness to take advantage of alternative means when they adopt a promotion versus a prevention focus and when they think about their goal in the distant-future versus in the near-future.

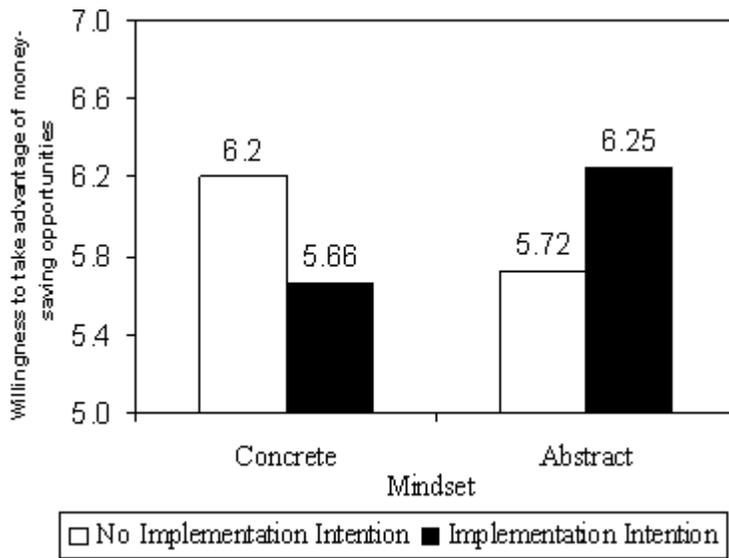


Figure 7-1. Effect of mindset after forming an implementation intention on the willingness to take advantage of goal-relevant, money-saving opportunities.

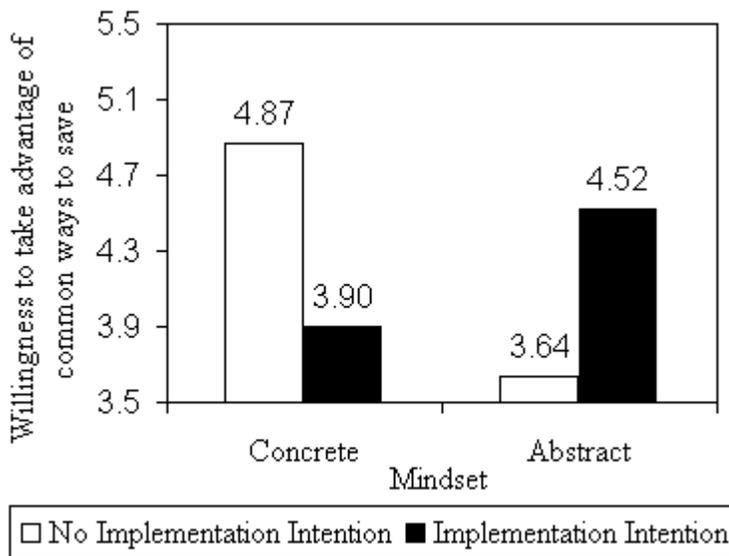


Figure 7-2. Effect of mindset after forming an implementation intention on the willingness to take advantage of common ways to save money.

Table 7-1. Effect of mindset after forming an implementation intention on the willingness to save using three common money-saving means.

		Form implementation intention	Do not form implementation intention
Dining	Abstract	4.69	4.00
	Concrete	4.31	5.06
Going out	Abstract	4.06	3.00
	Concrete	3.54	4.06
Shopping	Abstract	4.81	3.92
	Concrete	3.85	5.50
Aggregate	Abstract	4.52	3.64
	Concrete	3.90	4.87

## CHAPTER 8 EXPERIMENT 3

Over the last decade, a stream of research on temporal distance has examined how people construe events. In general, people have an easier time picturing the upcoming day or week compared to the upcoming month or year. Yet we can easily think of situations in which we have either a short amount of time or a long amount of time to save money for something, to get in shape, to take a vacation, or to pursue any of a number of our goals.

When thinking about achieving their goals, people are likely to have more detailed information available regarding what type of situations they might face in the near-future versus in the distant-future. This stream of research has shown that when people 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 terms (Liberman, Sagristano and Trope 2002; Liberman and Trope 1998; Trope and Liberman 2003). Experiment 3 manipulates the time-frame of the goal and examines how the time-frame affects individuals' willingness to take advantage of a variety of goal-relevant means once they form an implementation intention.

### **Hypotheses**

- **H4a:** When participants form an implementation intention to save money in a specified way, thinking about their goal in the near (versus distant) future will lead them to be less likely to take advantage of alternative money-saving opportunities.
- **H4b:** When participants do not form an implementation intention to save money in a specified way, thinking about their goal in the near (versus distant) future mindset will lead them to be more likely to take advantage of alternative money-saving opportunities.

### **Method**

This study had four-hundred and forty participants and employed a two (Form Implementation Intentions: no, yes) by two (Temporal Construal: near, distant) design.

It was conducted using computers. The cover story presented to the participants was the same as in the prior studies. The goal-intention procedure and implementation intention manipulation were adjusted to reflect the temporal distance factor. Specifically, participants were asked to think about the relevant time-frame when they formed a goal intention. The instructions to form a goal-intention were:

Please describe something that you would like to save up money to buy. It should be semi-expensive or something that you don't generally purchase. You should have a goal to save enough money to purchase this item. This item should take you several months to save for, and it should be something that you plan to begin saving for in the next two weeks/ (next six months). Since this is something you will need sooner rather than later/ (won't need for a little while), starting to save in the next two weeks/ approximately six-months should help you achieve your goal. Be as detailed as possible when describing WHAT you want to buy and WHY it is important for you to buy it.

Next, approximately half of the participants formed an implementation intention by discussing a means they would use to achieve their goal of saving money. Of those who formed an implementation intention, approximately half were asked to form a plan to start saving money in the upcoming two weeks (near-future), and half were asked to form a plan to start saving money in the upcoming six months (distant-future). The instructions for participants who formed an implementation intention were as follows, depending on condition:

Please form a plan of how you will save money starting in the next two weeks/ (6 months) or so. The plan should be for a few months. It should list situations you expect to face, when you plan to face them, and how you will act to achieve your goal when these situations arise. When forming this plan, consider other things going on in your life in this time frame. We ask that you really think about this plan form a realistic plan that you will feel committed to. Once again - discuss the how, when, where, what, etc. of the plan as you feel necessary.

Those who did not form an implementation intention were asked to list as many words as they could that have the letter "d" in the middle of the word. Next, depending on the time-frame for which they formed their plan, participants who formed an implementation intention were asked whether or not they would take advantage of each of eight goal-directed means in the few-

month interval beginning within two weeks or in six months. The goal-directed means presented to the participants were the same as those in Study 2a. For the participants in the control condition who did not form an implementation intention, approximately half of the participants were asked about their likelihood to take advantage of these means in the in the interval beginning within two weeks or the interval beginning in approximately six months. The time-frame for which the participants thought about their goal, the means, and the likelihood of taking advantage of the presented means remained consistent within participant.

The key dependent variable was the participants' likelihood of taking advantage of the various goal-directed means. Since their goal was to save money, and the means presented were not mutually exclusive, participants should be willing to consider as many means as possible to save money. The participants were presented with each of the eight means, one-by-one, and asked to respond with "Yes" or "No" regarding their willingness to take advantage of each of the presented means.

## Results

For each of the eight presented means, a response was coded as 0 if the participant said they would not take advantage of it and 1 if they said they would. The Cronbach's alpha equaled .54. The number of "Yes" and "No" responses was averaged to develop a measure of the proportion of means that the participants would pursue. An ANOVA revealed a significant interaction of forming an implementation intention by temporal construal on the aggregate measure of the likelihood to take advantage of the alternative goal-directed means ( $F(1,436) = 6.64, p = .01$ ). I found that when participants were thinking about the distant future, those who formed an implementation intention were more likely to take advantage of a greater variety of means than those who did not form an implementation intention ( $M_{\text{Intention}} = .76, M_{\text{NoIntention}} = .71; F(1, 436) = 3.05, p = .04; \text{one-tailed}$ ). On the other hand, when participants were thinking about

the near future, participants who did not form an implementation intention were more willing to take advantage of a greater number of means than participants who formed an implementation intention ( $M_{\text{Intention}} = .69$ ,  $M_{\text{NoIntention}} = .76$ ;  $F(1, 436) = 3.64$ ,  $p = .03$ ; one-tailed) (See Figure 8-1).

As in Study 2a, I conducted a supplementary analysis to see if the results are stronger for atypical versus typical means. The four typical means included cook at home more, purchase less on impulse, limit how much you dine in restaurants, and limit how much new clothing you purchase. The four atypical means included donate clothing to get a tax break, stock-pile on groceries, purchase groceries when they are on sale, and combine errands to save money on gas. I did not find a significant three-way interaction ( $F(1, 436) = .97$ ,  $p = .326$ ). The implementation intention by mindset interaction was significant for atypical means ( $M_{\text{DistImp}} = .57$ ,  $M_{\text{DistNoImp}} = .52$ ,  $M_{\text{NearImp}} = .54$ ,  $M_{\text{NearNoImp}} = .62$ ;  $F(1, 436) = 6.40$ ,  $p = .01$ ), but not for typical means ( $M_{\text{DistImp}} = .90$ ,  $M_{\text{DistNoImp}} = .85$ ,  $M_{\text{NearImp}} = .91$ ,  $M_{\text{NearNoImp}} = .88$ ;  $F(1, 436) = 1.90$ ,  $p = .17$ ). None of the simple main effects tests were significant.

## Discussion

In accordance with prior research, I found that thinking about the near-future often leads people to adopt a concrete mindset and to become more closed-minded, but thinking about the distant-future often leads them to adopt an abstract mindset and be more open-minded. In particular, when participants formed an implementation intention for the near-future (versus the distant future), they were less open to taking advantage of other goal-directed means. When they did not form an implementation intention but thought about their goal in the near-future (versus the distant future), they were more open to taking advantage of the other means. I also conducted a supplementary analysis, and showed that these effects, directionally, held more strongly for

atypical means – thus, means that the participants were less likely to think of on their own before I made these means salient.

Yet thinking about our goals in the short-term versus the long-term is just one of the ways in which we naturally think abstractly or concretely, and which thus can impact how beneficial or detrimental the specifying of a goal-directed means could be. Chapter 4 will examine another way in which we can think abstractly or concretely when we encounter goal-relevant opportunities.

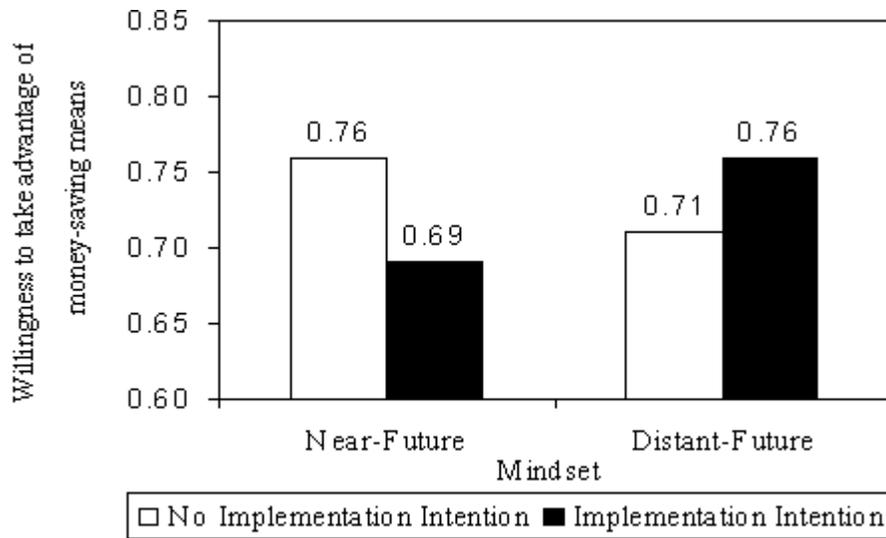


Figure 8-1. Effect of temporal construal of a goal and its' associated implementation intention on the willingness to take advantage of goal-relevant means.

## CHAPTER 9 EXPERIMENT 4

A second factor that influences the adoption of a concrete or abstract mindset is a promotion focus or a prevention focus. Regulatory focus theory suggests that people can use regulatory focus to attain their goals in two different ways (Higgins 1987). Individuals who adopt a promotion focus view their goals as hopes and aspiration. In contrast, individuals who adopt a prevention focus can view the same goals as duties and obligations (Zhu and Meyers-Levy 2007). I hypothesize that adopting a prevention (promotion) focus will make individuals think about their goal more concretely (abstractly). This mindset should impact an individual's willingness to take advantage of goal-directed, out-of-plan means once implementation intentions are formed.

### **Hypotheses**

- **H5a:** When participants form an implementation intention to save money in a specified way, adopting a prevention (versus promotion) focus will lead them to be less likely to take advantage of alternative money-saving opportunities.
- **H5b:** When participants do not form an implementation intention to save money in a specified way, adopting a prevention (versus promotion) focus will lead them to be more likely to take advantage of alternative money-saving opportunities.

### **Method**

This study had one-hundred and forty-two participants and employed a two (Form Implementation Intentions: no, yes) by two (Regulatory focus: promotion, prevention) design.

The cover story and the formation of goal intentions was the same as in Study 2a. Once participants formed implementation intentions or completed the letter-processing task, they were led to adopt either a promotion focus or a prevention focus. The manipulation of regulatory focus was adopted from Zhu and Meyers-Levy (2007). To adopt the promotion focus, the participants were told to consider their current hopes and aspirations related to money and how these may

have changed as they grew up. To adopt the prevention focus, they were told to consider their duties and obligations related to money and how these may have changed as they grew up. Regardless of regulatory focus, the participants were told to write-out their thoughts in as much detail as possible.

The key dependent variable was the participants' likelihood to take advantage of each of eight goal-directed means. The eight means were the same as those presented in Study 2a and Study 3 (See Exhibit 1). The participants were presented with each of the means, one-by-one, and asked on a scale from 1-9 with 1 = "not at all likely to use this method" and 9 = "very likely to use this method" to rate their likelihood in the upcoming month to take advantage of each of these means.

## Results

The Cronbach alpha for the eight means was .68, so I collapsed across the means to develop an aggregate measure of the likelihood to take advantage of means. An ANOVA revealed a significant interaction of forming an implementation intention by regulatory focus on the aggregate measure of participants' likelihood to take advantage of a greater variety of means ( $F(1, 138) = 8.56, p < .01$ ). When participants adopted a promotion focus after forming an implementation intention, forming an implementation intention led them to take advantage of a more means than participants who did not form an implementation intention ( $M_{\text{Intention}} = 6.51, M_{\text{NoIntention}} = 5.89; F(1, 138) = 4.85, p = .03$ ). On the other hand, when participants adopted a prevention focus after forming an implementation intention, those who formed an implementation intention were likely to take advantage of fewer means than those who did not form an implementation intention ( $M_{\text{Intention}} = 5.69, M_{\text{NoIntention}} = 6.29; F(1, 138) = 3.81, p = .05$ ). (See Figure 9-1)

As in Study 2a and Study 3, I conducted a supplementary analysis to see if the results are stronger for atypical versus typical means. Once again the four typical means included cook at home more, purchase less on impulse, limit how much you dine in restaurants, and limit how much new clothing you purchase. The four atypical means included donate clothing to get a tax break, stock-pile on groceries, purchase groceries when they are on sale, and combine errands to save money on gas. I did not find a significant three-way interaction ( $F(1, 138) = .69, p = .41$ ).

### **Discussion**

Study 4 showed that adopting a promotion focus (versus a prevention focus) after forming an implementation intention leads to a greater likelihood of taking advantage of goal-directed means. On the other hand, a prevention focus leads to more item-specific, concrete processing when considering goal-directed means, and thus forming an implementation intention prior to adopting a prevention focus (versus a promotion focus) leads to a lower likelihood to take advantage of goal-directed means.

In the supplementary analysis in which I examined the difference between individuals' likelihood to take advantage of typical versus atypical means, I found that the same pattern held for both typical and atypical means. Perhaps there is something fundamentally different about adopting a promotion or a prevention focus as opposed to adopting a concrete or an abstract mindset. It is possible that when people are thinking about their duties or their ideals, they are not really thinking about whether the means is typical or is easy to execute, but instead become more (or less) willing to take advantage of any goal-directed means that becomes available.

In the studies discussed in the dissertation so far, the participants who formed an implementation intention thought about one primary means that they could use to achieve their goal. In particular, they specified an "if" (situation) and a "then" (behavior) to help them execute the goal-directed behavior when the opportune situation arises. However, people often think

about more than one means to achieve a goal. For instance, to get into better shape, a person might lower his carbohydrate intake *and* increase cardio activity. Similarly, to save money, he might limit dining out *and* try to use the bus or carpool instead of driving. Study 5 will examine how specifying one means versus several means affects individuals' willingness to take advantage of goal-directed means subsequent to forming an implementation intention.

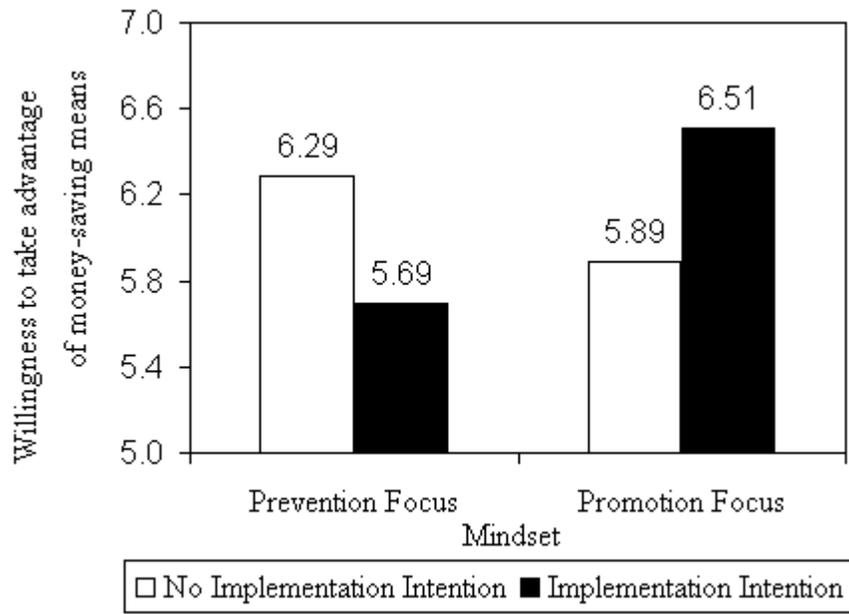


Figure 9-1. Effect of the adopted regulatory focus after forming an implementation intention on the willingness to take advantage of goal-directed means.

## CHAPTER 10 EXPERIMENT 5

Thus far, we have shown how a person's mindset can moderate the influence of forming an implementation intention. It has been argued that a concrete mindset focuses a person on the means identified in the implementation plan, thus rendering out-of-plan means less valuable. In contrast, an abstract mindset refocuses a person on the goal associated with the implementation intention, hence, out-of-plan means become more valuable. If this is so, we should be able to alter the implemental plan in a manner that alters the moderating influence of the mindset.

Consider an implementation intention that includes one versus multiple means. Multiple-means plans should be more likely than single-means plans to include a strategy to be flexible, adaptive, and opportunistic. Strategic flexibility is an effective way to take advantage of a multiple-means plan. To the extent a concrete mindset encourages a person to be sensitive to the details of the implemental plan, a multiple-means plan, as compared to a single-means plan, should increase the value of out-of-plan means. In contrast, people in an abstract mindset should be sensitive to the goal supporting the means. When there are multiple means, the goal can be represented at various levels of specificity. For example, if a person were to list "buy clothes on sale", "don't shop for clothing as entertainment", and "stay away from mall" as means for saving money, an abstract mindset could recast the *saving money* goal as a *saving money by managing clothing purchases* goal. In effect, listing multiple means can result in a general goal (e.g., save money) becoming more focused (save money in category X). Thus, a multiple-means plan, as compared to a single-means plan, has the potential to reduce the value of out-of-plan means when people are in an abstract mindset.

### Hypotheses

- **H6a:** When participants form an implementation intention to save means in one way, adopting

a concrete (versus abstract) mindset will lead them to be less likely to take advantage of alternative money-saving opportunities.

- **H6b:** When participants form an implementation intention to save money in several ways, adopting a concrete (versus abstract) mindset will lead them to be more likely to take advantage of alternative money-saving opportunities.

### Method

This study employed a two (Form Implementation Intentions: no, yes) by two (Mindset: concrete, abstract) design. Most of the experiment was conducted on the computer.

Just as in Study 1, the participants were presented three dollars. They were told that in addition to the extra credit, the money was a thank you for their participation owing to the difficulty of getting participants toward the end of the semester. Indeed, no session had more than half of the computers stations occupied. They were also informed that the session involved several short, unrelated studies put together by faculty and graduate students at the University. Once the participants received the money, they were told the money belongs to them and they should put it away. Next, they completed an unrelated filler task for several minutes. Then, they were presented with an allegedly separate study about how they save money. The participants formed goal intentions to save money just as in the prior studies. The participants were then shown one of the following sets of instructions, depending on the condition:

Please think about one way/(several ways) to save money that you will use in the upcoming month. This method should help you achieve your goal of saving money. It should include more than just putting money aside. Instead, it should be one change/(several changes) to your current habits. Prior research has shown that focusing on one way/ (several ways) to save money will help you achieve your money-saving goal better.

Next, the participants were asked to form a detailed plan specifying how they will save money in the upcoming month. Some of the participants were asked to discuss in detail one plan to save money, including the where and when they will execute the necessary goal-directed actions, whereas others were asked to discuss several plans to save money, including all of the

same details. The participants could not continue with the study for several minutes, but were given as much time as they felt was necessary.

After they formed a plan, they were presented with an unrelated filler task for approximately ten minutes. Next, as in Study 1, they saw a separate study titled “Marketing Lab Pretest of Student Choices.” The participants were told that the Marketing Department is interested in selling snacks to participants during the extra credit studies, and they are now doing a pretest of what type of snacks, if any, students would like. The participants were informed that today is one of the days that they are pre-testing this idea, and that they have the opportunity to purchase snacks at 75 cents each. They were not obligated to purchase any snacks, but could select as many as they wanted. The participants were presented with the same 4 options as in Study 1: Snickers candy bars, Chips Ahoy chocolate chip cookies, Pepperidge Farm goldfish packets, or Nature Valley granola bars and were told that they are not obligated to purchase any snacks, but could purchase as many as they wished to. They had to indicate on the computer how many of each candy they wanted. The participants were not reminded about the money they received earlier, but, once again, I knew that each participant had at least three dollars at the time of their choice, and thus could purchase up to four snacks using that money. Once the participants made their selections, the experimenter brought the snacks to those who chose to make a purchase and collected their money while the participants completed an unrelated questionnaire.

The key dependent variable was how many snacks the participants purchased, since the more snacks they purchase, the lower their ability to control their impulse buying and the lower their likelihood of saving money.

## Results

I examined the total number of snacks that participants purchased, since each snack was available for the same price. As expected, an ANOVA revealed a significant interaction of the number of means and mindset on spending behavior ( $F(1,75) = 10.30, p < .01$ ). In particular, when participants adopted a lower-level, concrete mindset after forming one implementation intention (versus several), they became less likely to save the \$3 ( $M_{\text{Several}} = \$2.66$  saved,  $M_{\text{One}} = \$2.21$  saved;  $F(1, 75) = 3.08, p = .04$ ; one-tailed). When participants adopted a higher-level, more abstract mindset after forming one implementation intention (versus several), they became more likely to save the \$3 ( $M_{\text{Several}} = \$2.06$  saved,  $M_{\text{One}} = \$2.78$  saved;  $F(1, 75) = 7.72, p < .01$ ). (See Figure 10-1).

## Discussion

As predicted, experiment 5 showed that a person's mindset moderated the influence of forming an implementation plan that included one versus several means. Planning to pursue several means was beneficial when participants were in a concrete mindset, but detrimental when participants were in an abstract mindset. People in a concrete mindset likely made a multiple-means plan that implicitly required flexibility. This flexibility allowed the participant to value and take advantage of the opportunity to save money by avoiding the candy purchase. People in an abstract mindset likely recast the goal at a level of specificity that was consistent with the multiple-means plan. Thus, although a goal was active, the specificity of the goal did not encourage the rejection of the chance to purchase candy. An implemental plan that included multiple means was detrimental relative to a single means plan when people were in an abstract mindset.

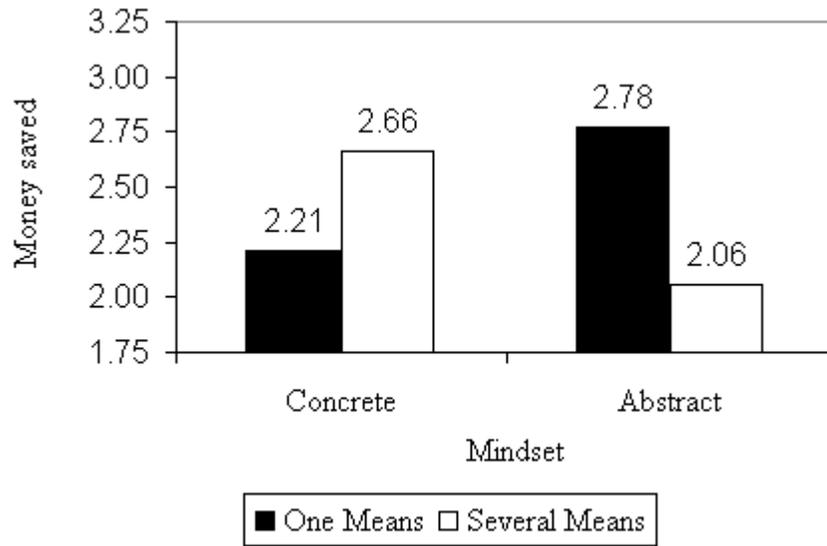


Figure 10-1. Effect of the number of means specified in an implementation intention on the number of snacks purchased.

## CHAPTER 11 GENERAL DISCUSSION

To review, the set of studies presented in this dissertation examined the goal of saving money – a goal common in our society, especially amongst students. It is important to examine the circumstances under which forming an implementation intention can lead individuals to be more or less likely to take advantage of goal-relevant opportunities that they may not have specified when they formed a plan. The findings in this dissertation suggest that a person's mindset moderates the influence of an implementation intention by either making people sensitive to the emphasis placed on the means in the implemental plan or making people more sensitive to the goal associated with the plan. A concrete mindset makes people more sensitive to the specific details of the plan. To the extent that a single means is the focus of the plan, this means enters the forefront, and thus becomes more likely to be utilized. Consequently, alternative means become less likely to be utilized. On the other hand, an abstract mindset makes people more sensitive to the reasons for the plan. The overarching goal becomes salient, and when this goal is relevant to the means being considered, people become more likely to take advantage of the means they did not specify when forming their plan.

The results of the experiments are consistent with my hypotheses. Experiment 1 showed that an implementation intention discouraged the use of alternative means when people were in a concrete mindset, but encouraged the use of alternative means when people were in an abstract mindset. Experiment 2 showed that the negative effects of forming an implementation intention are a devaluation effect, as opposed to a failure to recognize the instrumentality of the alternative means. Experiments 3 and 4 showed that participants can naturally adopt a concrete or an abstract mindset. Experiment 5 illustrated that concrete and abstract mindsets influence whether a person focuses on the specifics of plan or on the goal supporting the plan. Thus, alterations to

the specifics of the plan or the specificity of the goal supporting the plan can influence how a mindset moderates the influence of an implementation intention on the evaluation of out-of-plan behaviors.

### **Implications**

Why does it matter if people are not open to other goal-directed means once they specify a means they want to pursue? It doesn't in all circumstances. If one can predict all future situations that he or she will encounter, know the feasibility of the actions necessary, or if achieving the goal involves executing a simple or a habitual action, specifying a plan should be helpful to goal achievement for the reasons discussed in this paper. For instance, specifying a plan should increase the likelihood an individual notices the specified situation and initiates the execution of the behavior.

However, losing flexibility is likely to be detrimental to people when they can't predict upcoming situations or their own abilities. Planning an action strongly relies on the accuracy of the predictions of future events, and is likely to fail if some of them turn out to be invalid. For example, an individual can make a plan to go to a store in the evening, and when the individual arrives, the store may already be closed. Furthermore, an individual may link a critical situation to a behavior or outcome that turns out to be out of his or her control. For instance, he might have the goal to eat healthy food but healthy options are not available at the restaurant that this person is at. Implementation intentions may also specify opportunities that hardly ever arise or behaviors that are not very relevant to reaching the goal. An individual can specify a behavior that has limited instrumentality with respect to reaching the goal.

Together, these studies suggest that thinking abstractly after forming an implementation intention, whether it is due to thinking more broadly in general, thinking about a goal in the distant-future, or considering the means through promotion focus glasses, leads people to take

advantage of more goal-directed means and to be more likely to behave in an appropriate way to reach their goal. On the other hand, thinking more concretely, whether due to thinking more narrowly, thinking about the goal in the near-future, or considering the means through prevention-focused glasses, after forming an implementation intention, can lead people to take advantage of fewer goal-directed means and can lead them to be less likely to behave in a goal-consistent manner. As discussed in greater depth in the beginning of this paper, these findings have many implications for consumer welfare, for marketers who want to ensure that their product enters, or remains in, an individuals' consideration set, and for salespeople and managers who want to effectively make a sale to a new, unexpected customer or train employees that may have a different skill-set than those that the manager is accustomed to.

### **Limitations and Future Research**

One of the key limitations of this set of studies is the laboratory setting, which restricted the extent to which I could monitor individuals' spending after they leave the laboratory. Even though I tried to create a realistic consumer scenario in this paper, in which participants had the option of spending money to receive a real item, there is still much to be learned. For instance, what would happen if participants responded to the same set of questions before entering a grocery store? How would their mindset after they formed implementation intentions affect their likelihood to engage in impulse purchases? I hypothesize that our findings would hold in real-world situations, whether its consumers deciding whether to spend or save or purchasing managers making executive spending decisions, and these issues opens some opportunities for future research.

Another limitation of this research is the age range of the participants who completed our studies. Although this is a concern common to nearly all consumer behavior research, it makes it

is difficult to assess the generalizability of the results to the population. All of the participants in our studies were college students who received extra credit. Whereas this raises the question if the results would hold if the study was conducted using older participants, I believe that finding such results with student participants implies a conservative test of our hypotheses. Students, even those who have jobs, are often supported at least partially by their families or spouses. This suggests that the goal to save money isn't as much a life-or-death issue as it often is for adults. Regardless, it is important to test our hypotheses using people of various age ranges and income levels.

In each of the studies discussed in the paper, the participants focused on a very important goal: saving money. Even though this goal is often crucial to American consumers, especially in today's economy, I have not yet looked at how forming implementation intentions and adopting a particular mindset when presented with possible goal-directed opportunities affects individuals' likelihood to utilize these opportunities when other goals and means are involved. For instance, many students are likely to have goals such as to stay in shape, to visit a healthcare professional, to improve their grade in a class, etc.. Understanding what type of goals these hypotheses can be extended to is important.

In the present studies, I manipulated concrete and abstract mindset using manipulations that were related to the goal, such that participants had to think about how they should save money or why they should save money. In future studies it will be important to see if the same effect holds if the mindset is created by thoughts that are unrelated to the goal. For instance, would I find the same results if I asked participants to discuss why they would get into better shape or how they would get into better shape, and later asked them about their willingness to take advantage of money-saving opportunities. If this effect would hold regardless of the topic

that leads people to adopt a particular mindset, people as consumers and in their everyday life need to realize these consequences as they form plans to attain their goals and think about other possible opportunities to execute goal-directed behaviors.

With this research, I suggest that there are circumstances when forming implementation intentions can be detrimental to considering a variety of goal-directed means and to goal achievement because it can lead people to become more closed-minded. This is most likely to be an issue if the specified ways to achieve the goal are not available, and thus the reduced willingness to consider other means could lead people who adopted a concrete mindset to be less likely to consider and take advantage of other goal-directed means, especially if they are not presented in a straight-forward manner. In future research, I intend to examine circumstances when the means selected when an implementation intention is formed is no longer available to the individual and none of the available means are very similar to the original one. I hypothesize that forming an implementation intention will lead people to easily switch to other means only if the mindset they adopt when considering other means is abstract.

Another interesting question to answer in this area is whether the decreased willingness to take advantage of alternative means is best explained by a motivational or a cognitive phenomenon. Thus, is it that participants are not motivated to take advantage of the goal-directed means they are presented, or do they not pay attention to or remember the means? This question can be addressed by measuring response time and seeing how long participants in the different conditions look at each of the presented means, and by asking them to recall the means that they remember seeing at the end of the study.

In particular, Study 3 and Study 4 showed that temporal construal and regulatory focus influence mindset, and thus can affect individuals' open-mindedness once they form an

implementation intention. Current research in consumer behavior shows that purchase decisions can also influence mindset. For example, Malkoc, Zauberan and Bettman (working paper) examined different levels of thinking abstraction and action identification which were evoked by prior tasks and showed that the processing differences caused by the different mindsets can have long-lasting effects on consumers' decisions in other consumption situations. Future research can examine other variables in the environment or other marketing-related behaviors that people engage in that could affect their open-mindedness once they form an implementation intention.

Moreover, the goal that I looked at in this study, saving money, is a goal that people would like to achieve, but the process of limiting oneself is not typically a pleasant one. I would expect the same results if I looked at other similar goals, such as saving money or going to the doctor, where individuals' attitude and intention are positive yet pursuing the necessary means is not pleasant. It would be interesting to examine if the same pattern would hold for more positive goals, such as planning a vacation. I assume that this pattern only holds for goals where people, if given the option, would prefer not to execute the means, and I would like to examine this distinction in future research.

Lastly, a possible cost associated with forming an implementation intention is that participants might become so focused on the plan that they formed, they will be less likely to disengage from their plan even when other opportunities are available. Gollwitzer et al. (2007) discuss a study conducted by Jaudas, Achtziger, and Gollwitzer (2006) in which they examined how participants find the shortest way through various mazes. In particular, they provided the participants with a defective plan by telling them that a green arrow would appear at times to indicate a shortcut, whereas in reality the green arrow only indicated a shortcut thirty percent of the time. Participants who formed implementation intentions were less likely to disengage from

the faulty plan than participants who adopted the goal but did not form implementation intentions. Future research could examine the effect of mindset after forming an implementation intention on individuals' willingness to disengage from an unproductive means.

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