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ACTION AND INACTION IN CONSUMER AND SOCIAL CONTEXTS:
THE EFFECTS OF PRIOR AND ONGOING ACTIVITY LEVELS ON
INTENTIONS AND DECISIONS

BY

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DISSERTATION

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ABSTRACT

My thesis explores the effects of physical and cognitive activity levels—i.e., active and inactive behaviors—upon consumer judgments and decisions. I hypothesize that active or inactive conditions impact ongoing or subsequent, often unrelated consumer and social behavior through various psychological processes. I investigate this proposition through two series of studies designed to look at (a) situational conditions that trigger active and inactive behaviors in the decision making process (Essay 1) and (b) the effect of active and inactive behaviors on subsequent, unrelated performance and decisions made in various domains (Essay 2). Essay 1 finds that situational conditions provoke *passive* decision making (i.e., low motivation and/or low ability to expend effort) that increases passive reliance on default options. Situational conditions that trigger *active* decision making (i.e., high motivation and/or high ability to expend effort), however, can attenuate or reverse reliance on default options. Essay 2 shows that prior *active* behaviors (e.g., walking, running) invoke general action goals, which in turn increase the perceived motivational fit with the immediate deadline, compared with prior *inactive* behaviors (e.g., standing, sitting) that invoke general inaction goals. As a result, prior active behaviors enhance the likelihood of initiating an action by an immediate deadline more than do prior inactive behaviors. However, this effect is absent when the deadline is distant because general action and inaction goals are thus less relevant. These two essays contribute to our understanding of how activity levels influence judgment, decision making, and performance in consumer and social contexts.

To my parents, Yang, and Weihang

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CHAPTER 1

INTRODUCTION

Consumer choices are often affected by certain cognitive and physical conditions, even when these conditions seem irrelevant. In particular, consumers' decisions may be influenced by whether or not they engage in active or inactive behaviors prior to and during the decision making process. For example, the decision to go shopping may be influenced by previous behaviors such as running or sitting. Likewise, the acceptance of a default option may depend upon whether one inputs more or less cognitive effort when thinking about the decision at hand.

Active and *inactive* behaviors can be defined by the degree of physical and/or cognitive effort someone puts into an action. This definition is built upon the notion of *action* and *inaction* representing two ends of a continuum of activity, varying in the degree of motor and/or cognitive output (Albarracín et al., 2008; Albarracín, Hepler, & Tannenbaum, 2011; Gendolla & Silvestrini, 2010; Laran, 2010). Employing this polarity, high-intensity physical and/or cognitive activities (e.g., running or high level deliberation) are active behaviors, whereas low-intensity physical and/or cognitive activities (e.g., sitting or low level deliberation) represent inactive behaviors. My thesis examines how *active* or *inactive* behaviors affect ongoing and subsequent consumer decisions through various psychological processes, seeking to answer the following questions: What factors will drive active and inactive behaviors in the decision making process? How will active and inactive behaviors affect judgments and decisions? Will the effects depend upon the choice format? Will it be contingent upon the marketing strategy involved in consumer decisions?

The first series of studies (Essay 1) investigates factors determining the likelihood of engaging in active or passive¹ decision making, which affects the probability of accepting a default option. The second series (Essay 2) concerns how the active (e.g., running, walking) and inactive (e.g., standing, sitting) behaviors of decision makers affect intentions and decisions by triggering general goals to be active and inactive, which in turn alter their perceived fit with the action cues (e.g., a deadline). In a nutshell, Essay 1 examined the conditions that lead to active and inactive behaviors in the decision making process, which have significant downstream impacts on choices. Essay 2 provided evidence of the goal mediation process elicited by the active and inactive behaviors. Both essays contribute to our understanding of the effects of active and inactive behaviors on decisions, intentions, and performance in consumer and social contexts.

In the following sections, I will review relevant literature regarding factors leading to active and inactive behaviors, and how these behaviors—as well as conditions leading to an active disposition—affect future behaviors and decisions through procedural knowledge and mindsets, general action-inaction goals, and goal-mediated processes. The research reviewed in this chapter sets up the theoretical foundation for this thesis.

Factors Leading to Active and Inactive Behaviors

Whether or not people engage in active or inactive behaviors may be determined by their ability and motivation. Motivation and ability are critical factors for determining the extent to which people engage in a cognitive process. For example, in the Elaboration Likelihood Model (ELM, Petty, Cacioppo, & Schumann, 1983; Darley & Smith, 1993; Kang & Herr, 2006; Shavitt, Swan, Lowrey, & Wanke, 1994; for reviews, see Petty, Haugtvedt, & Smith, 1995; Wegener, Petty, Smoak, & Fabrigar, 2004), people who have the motivation and ability to process

¹ I use inactive and passive interchangeably throughout the thesis.

persuasive messages adopt the central persuasion route during which they thoroughly process the messages. By contrast, people who lack the motivation or the ability to process persuasive messages adopt the peripheral persuasion route, in which messages are processed heuristically. Therefore, when people have the ability and motivation to exert the effort, they are likely to engage in active behaviors such as running and high level deliberation during decision making. By contrast, when people lack the ability or motivation to exert the effort, they are likely to engage in inactive behaviors such as sitting and low deliberation during decision making. Essay 1 explores how these two factors—ability and motivation—affect the likelihood of engaging in active or passive decision making, as a result of which people make distinct decisions. Active or inactive behaviors may also be determined by prior physical activities; for example, people may engage in active behaviors such as running or inactive behaviors such as sitting prior to making an unrelated consumer decision. Essay 2 explores how these prior physical behaviors affect subsequent and unrelated decisions.

Active-Inactive Behaviors and Behavioral Mindsets

Active and inactive behaviors may affect subsequent decisions by triggering behavioral mindsets through stimulating certain procedural knowledge. Procedural knowledge is one of the two types of knowledge that are delineated to categorize information people store in their memory (Smith, 1994). The other type of knowledge, declarative knowledge, is defined as the content of cognition, such as the information that people acquire, process, store in memory, and use in judgment (e.g., semantic concepts about persons, objects, events, beliefs, and attitudes; Smith, 1994). Procedural knowledge, by contrast, entails processes that act on declarative knowledge, routines, or sequences of actions that people perform to pursue a particular goal (Smith, 1994). For example, a sequence of actions may be stored in the form: If [X] happens,

then [Y] happens (Anderson, 1982, 1983). In a later situation, if [X] is activated incidentally, [Y] may also be activated automatically and the likelihood of performing [Y] will increase.

Procedural knowledge may be activated by executing an action that leaves behavioral routines accessible for use in a new but relevant context, a process that has been termed *behavioral mindset* (for a review see Wyer, Shen, & Xu, 2013). For example, Xu and Wyer (2008) found that participants who compared the height of animals were more likely to spontaneously compare different types of chocolate candy at a later time because the comparison triggered the procedural knowledge of making a purchase (i.e., comparing products and then making a purchase). As a result, participants who compared animals first were more likely to make a purchase in an unrelated situation. Furthermore, Gollwitzer (1990) defined two types of mindsets: deliberative and implemental mindsets. People with a deliberative mindset consider the pros and cons of pursuing a specific action. By contrast, people with an implemental mindset focus on how to pursue said action. For example, in the shopping momentum effect, people first received twenty-five rupees as compensation for participating in a study and were then given the opportunity to purchase products from the experimenter. If people spent eighteen rupees to purchase the first product offered, they were more likely to use the leftover seven rupees to purchase a target keychain (Dhar, Huber, & Khan, 2007, Study 1). Similarly, people who were asked to participate in designating the price of a product had a higher purchase intention than did those who were given a fixed price to purchase the same product (Chandran & Morwitz, 2005), probably because the act of naming the price activated the implemental mindset of making a purchase, which led consumers to continue purchasing in a similar situation at a later time.

Likewise, active and inactive behaviors may trigger behavioral mindsets by activating corresponding procedural knowledge. For example, thinking about running may activate the

procedural knowledge of putting on athletic shoes, leaving the house, and executing specific leg and arm movements. Once this sequence of movements is activated, it may increase the probability of running in a later situation. Moreover, running may activate more general action preparation and initiation procedures that lead to later initiation of similarly active behaviors in a new context. In this case, the performance of an action like running may influence effort deployment routines in new contexts, such as those of interest in this thesis. Therefore, active vs. inactive behaviors, such as running vs. standing, may activate the implemental mindset of a specific behavior that would persist in an unrelated but similar situation (e.g., continuing to run vs. continuing to stand). If the mindset mechanism is dominating the effect of past active and inactive behaviors on future behaviors, we should expect the effect to be consistent when people make decisions in similar situations. However, if the effects of prior active and inactive behaviors on future behaviors are contingent on certain moderators, such as the timing of enacting behavior (i.e., doing it now vs. doing it later), the mindset mechanism should give way to other mechanisms in explaining the effects.

Action-Inaction Goals and Goal-Mediated Effects

Active and inactive behaviors may also influence future behaviors and decisions through triggering goals that may affect present and subsequent behaviors in goal-mediated ways. Recent research documents the effects of general action-inaction goals (Albarracín et al., 2008; Albarracín, Wang, & Leeper, 2009; Gendolla & Silvestrini, 2010; Laran, 2010; for a review see Albarracín, Hepler, & Tannenbaum, 2011). A general action goal entails pursuing an energy-demanding activity as the end state and often elicits an increase in physical and cognitive output. By contrast, a general inaction goal entails desiring a restful activity as the end state and ultimately elicits a decrease in physical and cognitive output.

General action and inaction goals, once activated, lead to either high or low motor and/or cognitive output, irrespective of the type of behavior. For example, participants incidentally exposed to general action words such as *active* and *go* exercise for longer than those exposed to inaction words such as *stop* and *rest* (Helper, Wang, & Albarracín, 2011). People who were primed with general action goals when shown active slogans, such as “Just Do It,” enjoyed the experience of processing difficult consumer information (e.g., products with many attributes) to a greater extent than did those who were primed with general inaction goals when shown inactive slogans, such as “You Deserve a Break Today” (Laran, 2010). Furthermore, action (vs. inaction) words presented during a memory task increased physiological effort indicated by more intense cardiovascular reactivity, as well as task performance indexed by quicker response time (Gendolla & Silvestrini, 2010).

General action goals can often be met by engaging in active behaviors conducive to a high level of activity as the end state. General inaction goals can be met correspondingly by engaging in inactive behaviors conducive to a low level of activity as the end state. For example, the general action goal can be satisfied by active behaviors including doodling on paper, folding a paper airplane, eating more raisins, and exercising for longer times. In contrast, the general inaction goal could be satisfied by inactive behaviors including closing one’s eyes to relax, eating fewer raisins, and exercising for shorter times (Albarracín et al., 2008, 2009).

Nevertheless, when goals are at stake, behavior can be strategic and not always immediately congruent with said goals. People who activate a general action goal may not be satisfied by the immediate active behavior that gives way to a low-activity end state. Likewise, people who activate a general inaction goal may not be satisfied by immediate inactive behavior that gives way to a high-activity end state. In research testing this prediction (Experiment 6 in

Albarracín et al., 2008), participants who were primed with a general action goal preferred to rest for about 30 seconds if they could then perform SAT-like problems for 3 minutes. Likewise, participants who were primed with a general inaction goal preferred to solve SAT-like problems for about 30 seconds if they could then rest for 3 minutes (Experiment 6 in Albarracín et al., 2008). In other words, the means to achieve the action and inaction goals can be distinguished from the goals themselves.

Like specific behavioral goals (Kruglanski et al., 2002), general action and inaction goals also possess properties of goal-mediated processes. Above all, if there was a delay between the initiation and the completion of action or inaction goals, the effect of the action-inaction goals was stronger compared with the no-delay condition. Furthermore, there is evidence of a decrease in the behavioral effects of action and inaction goals after the enactment of goal-consistent behaviors (e.g., Experiments 6 & 7 in Albarracín et al., 2008; also see Laran, 2010). Additionally, as successful goal attainment often results in positive affects (Fishbach, Shah, & Kruglanski, 2004), people may have a more positive affect if general action and inaction goals are satisfied. As evidenced in Laran's (2010) study, participants with a general action goal had a more positive affect after performing a complex task rather than a simple task. By contrast, participants with a general inaction goal had a more positive affect after performing a simple task rather than a complex one.

General action and inaction goals may be activated in various ways. One way is to ask participants to complete fragmented action words such as *ac_iv_* and *g_* or inaction words such as *st_ll* and *fr_ _ze* (Albarracín et al., 2008). Alternatively, participants may be primed with general action or inaction goals when presented with active slogans such as "Just Do It," or inactive slogans such as "You Deserve a Break Today" (Laran, 2010). In a similar vein of

research, social power has been linked to the activation of action goals. For example, people who recalled a situation in which they had high social power were more likely to initiate an action (e.g., move an annoying fan in the lab room; Galinsky, Gruenfeld, & Magee, 2003). In addition, personal involvement with an issue generally leads to a more active style of decision making and information processing. For example, recipients of persuasive messages who care about the issue in question are more likely to engage in deliberate processing than those who have little at stake (Petty & Cacioppo, 1986). This form of more active cognitive processing has also been demonstrated for action goals. For example, people who have been primed with action concepts are more likely to solve GRE-type problems and correctly memorize information than those who have been primed with inaction concepts (Albarracín et al., 2008). Once activated, action-inaction concepts can have direct effects on procedures (behavioral routines that can be activated in an automatic fashion) or can activate action and inaction goals that in turn influence procedures. In a nutshell, action and inaction goals may be elicited by the activation of many diverse means and procedures, and will ultimately be reflected in differences in activity level.

Thus, in the context of my thesis, prior and ongoing active and inactive behaviors may give rise to general action and inaction goals, respectively, which in turn affect future decision making and behaviors following the goal-directed processes.

The Present Research

In this dissertation, I investigate questions related to active and inactive behaviors through two series of studies. In Chapter 2 (Essay 1), I present a series of studies investigating factors underlying the likelihood of engaging in active vs. passive decision making, which further affect the probability of accepting a default option. The default option is a well-documented persuasive technique to increase behavioral compliance (e.g., Johnson & Goldstein,

2003; Madrian & Shea, 2001; Thaler & Sunstein, 2008). For instance, people are more likely to become organ donors when the default option is to be an organ donor and they must explicitly opt out if they object (Johnson & Goldstein, 2003). The power of this nudge, however, may build upon the underlying assumption that people are generally inactive and thus likely to comply with the normative influence imposed by defaults. I proposed that when people are able and/or willing to engage in active decision making, they are more likely to ignore or even question the default option, leading to a null or reverse default effect. Across six studies, I investigated the conditions in which people engage in active or passive decision making, which lead to varying consequences involving the default options.

In Chapter 3 (Essay 2), I examined the effects of active and inactive physical behaviors on intentions and decision making with regard to limited-time marketing offers. Specifically, I consider whether being physically active (e.g., walking, running) or inactive (e.g., sitting, standing) stimulates general action or inaction goals. Once the goals are activated, they may affect a potential purchase by influencing one's perceived fit with the marketing strategy of the sale (e.g., a deadline). Across one field experiment and three lab experiments, participants who enacted or imagined active (e.g., walking) vs. inactive (e.g., standing) behaviors made unrelated consumer decisions (e.g., redeeming a coupon, receiving a vaccine) associated with different time limits (e.g., with or without a deadline, with an immediate or distant deadline). As expected, participants were more likely to make purchases prior to a well-defined deadline after they enacted or imagined active behaviors than when they enacted or imagined inactive behaviors—and perceived fit mediated this effect. Essay 2 also provided evidence of the goal mediation process elicited by the active and inactive behaviors.

CHAPTER 2

“OPT IN” AND “OPT OUT” AS FUNCTIONS OF ACTIVE ENGAGEMENT:

THE ROLE OF ABILITY AND MOTIVATION TO MAKE A DECISION

The default option, which imposes a preselected choice on decision makers but still allows them to opt out, has been found to be a simple yet powerful tool to induce behavioral compliance (Johnson & Goldstein, 2003; Madrian & Shea, 2001; Thaler & Sunstein, 2008; Thaler, Sunstein, & Balz, 2012). Extant research has shown that, even though the default option does not alter the true value of choice options, setting the recommended behavior as the default can encourage individuals to choose the option preferred by policy makers in various domains, from organ donation (Johnson & Goldstein, 2003), to pension-plan choices (Madrian & Shea, 2001), to car insurance (Johnson, Hershey, Meszaros, & Kunreuther, 1993), to taxi tips (Haggag & Paci, 2014).

The power of the default, however, may build upon the underlying assumption that people are passive decision makers (Fiske & Taylor, 1991). For example, in Madrian and Shea's (2001) study, 76% of employees who accepted a preselected retirement plan chose the 3% default contribution rate, lower than the contribution rates chosen by 80% of employees who were not presented with a preselected retirement plan. This finding suggests that even though the default format may increase the enrollment rate, the process is rather passive and has limited impacts. By contrast, an active choice format that encourages people to decide thoughtfully may be more consequential. In this chapter, I explore how ability and motivation influence the extent to which people engage in active vs. passive decision making, leading to distinct impacts on the default effect. Specifically, I define *passive decision making* as the situation in which people lack motivation and/or the ability to exert effort to make a decision, and *active decision making* as the

situation in which people have the motivation and ability to exert effort to make the decision. I proposed that the default effect would likely induce behavioral compliance when people engage in passive decision making rather than when they engage in active decision making.

The Default Effect

Plenty of evidence supports the advantage of a default option in persuading individuals to comply (Johnson & Goldstein, 2003; Madrian & Shea, 2001; Thaler & Sunstein, 2008; Thaler et al., 2012). For instance, people are more likely to become organ donors when the default option during driver's license registration is to be an organ donor than when it is not (Johnson & Goldstein, 2003). More employees enroll in a 401K-retirement plan if they are automatically enrolled and must opt out if they object (Madrian & Shea, 2001). Car rental customers are more likely to accept a car insurance plan when it is set as the default than they are when it has to be selected (Johnson et al., 1993). Taxi passengers are more likely to tip their drivers at the default rate provided by an automated system (Haggag & Paci, 2014). Additionally, online respondents are more likely to agree to be contacted for future surveys if the option *notify me about more health surveys* has been pre-checked, requiring them to uncheck it if they do not want further contact (Johnson, Bellman, & Lohse, 2002). The size of the default effect is also considerable. As reported by Johnson and Goldstein (2003), 82% of potential organ donors chose to become donors when this option was set as the default, compared with only 42% when organ donation was not the default and was therefore actively chosen. Similarly, 86% of new employees signed up for a specific retirement plan when the plan was set as the default, compared with only 50% when plans were actively chosen (Madrian & Shea, 2001).

Three mechanisms have been proposed to explain these important and well documented default effects (Dinner, Johnson, Goldstein, & Liu, 2011; Johnson & Goldstein, 2003; McKenzie,

Liersch, & Finkelstein, 2006). First, the default options are likely to work because they offer clues concerning normative or adequate choices in specific situations (McKenzie et al., 2006). For example, people hold the belief that policymakers who set the default of becoming a donor – or the human resource staff who set the default retirement plan – themselves favor the preselected options (McKenzie, et al., 2006). Second, defaults are likely to sway decisions because people are afraid of upsetting the status quo (Dinner et al., 2011; Kahneman, Knetsch, & Thaler, 1991). For instance, people prefer their current electric service provider to other providers, even though others might offer a more reliable or cheaper service, probably because the feeling of loss associated with any change is aversive (Hartman, Doane, & Woo, 1991). Third, the passive default represents a relatively effortless way of making a decision, and is thus favored when people experience difficulty making a decision. For example, decision makers are more likely to accept default options to customize the features of a business suit when they are asked to choose from a large choice set rather than a small one, because choosing from a large choice set is more difficult, while the default is relatively effortless (Levav, Heitmann, Herrmann, & Iyengar, 2010).

Despite the overwhelming advantages of defaults, there are some known moderators. First, the default effect is present when decision makers are relatively naïve to the marketers' intent (default: 62% vs. control: 46%; Brown & Krishna, 2004; Study 1) but weakens (default: 48% vs. control: 54%; Brown & Krishna, 2004; Study 2) or even reverses (default: 44% vs. control: 62%; Brown & Krishna, 2004; Study 2), when decision makers suspect that the default is a marketing ploy. Second, the default effect appears to depend on the fit between the mood of decision makers and the nature of the default option, with happy (vs. sad) participants being more (vs. less) likely to choose a default to continue an experimental task in progress (80% vs. 70%) but less (vs. more) likely to choose a default to switch to a new experimental task (69% vs.

89%; Shevchenko, Helversen, & Scheibehenne, 2014). Third, difficult decisions motivate people to follow the default as a convenient heuristic device to simplify decisions and conserve effort, such as when there are more rather than fewer options in a choice set (53% vs. 25%, Tversky & Shafir, 1992; see also 53% vs. 28%; Levav et al., 2010). This latter research suggests that conditions reducing either the ability or the motivation to make a decision can increase reliance on defaults.

Passive Decision Making and Active Decision Making

I define *passive decision making* as the situation in which people lack the **ability** and/or **motivation** to exert the effort to make a decision. I proposed that when people lack this ability or motivation, their reliance on the default option may increase. Others, by contrast, may deliberately consider the pros and cons of the choice and will thus be less affected by the default when they have the ability or motivation to exert effort to make a decision. I define this as *active decision making*.

Motivation and ability are critical factors for determining the extent to which people engage in a cognitive process. For example, in the Elaboration Likelihood Model (ELM; Petty et al., 1983; for reviews, see Petty et al., 1995; Wegener et al., 2004), both motivation and ability determine the likelihood of engaging in the processing of persuasive messages. When people have the motivation and ability to process persuasive messages, they will adopt the central persuasion route. In contrast, when people lack the motivation or ability to process persuasive messages, they will adopt the peripheral persuasion route. Compared with people following the peripheral route, those under the central route may be more likely persuaded by central cues such as argument quality and relevance of the spokesperson, and less likely persuaded by peripheral cues such as endorser-type and attractiveness of the spokesperson (Darley & Smith, 1993; Kang

& Herr, 2006; Petty et al., 1983).

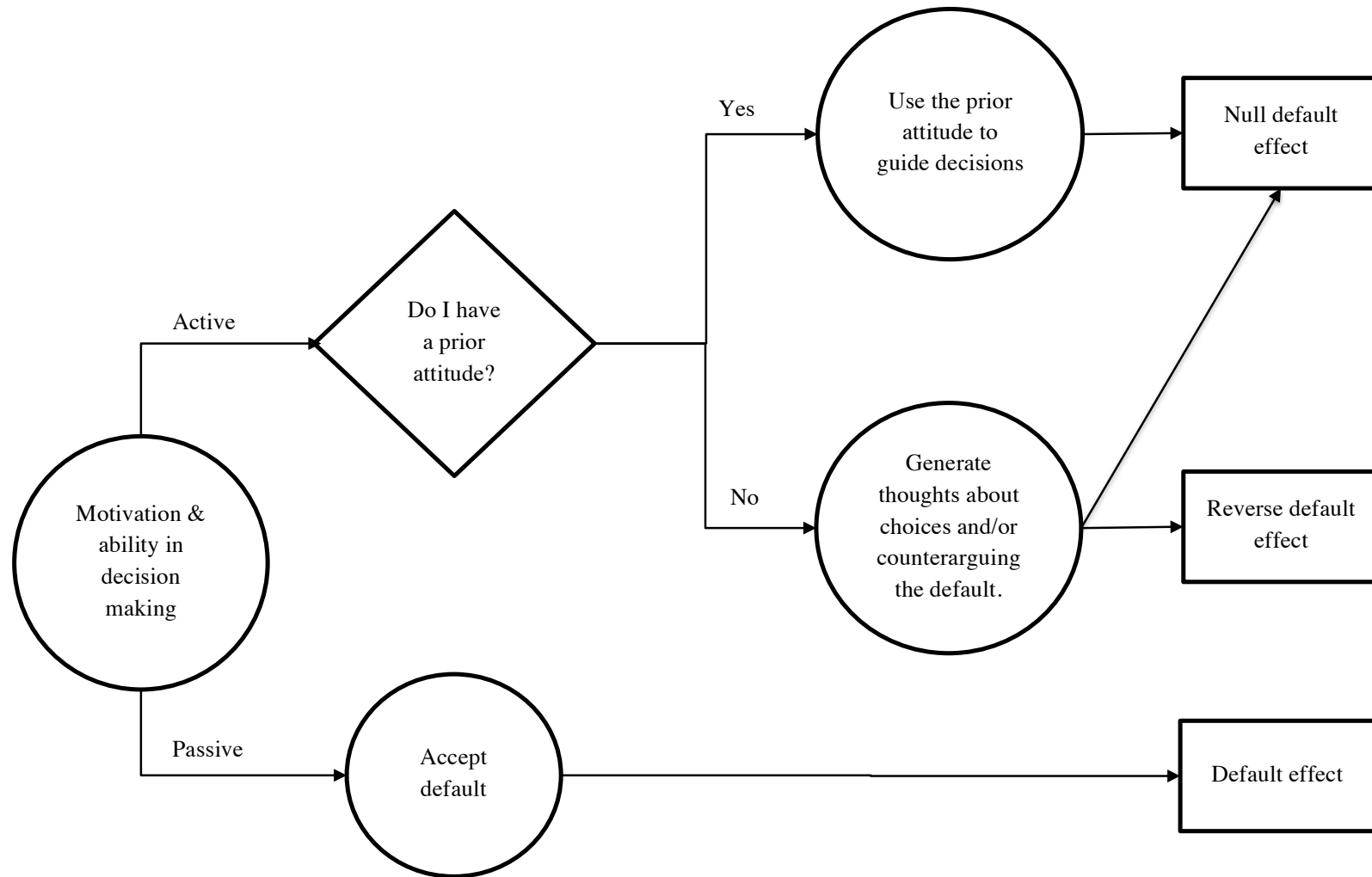
The active-passive decision making model shares vital factors with the Elaboration Likelihood Model. For example, people who demonstrate active decision making may engage in the central persuasion route, whereas those who demonstrate passive decision making may engage in the peripheral persuasion route. The two models are, nevertheless, distinct. For example, active decision makers may yet engage in peripheral processing, while passive decision makers may not engage in either central or peripheral processing, because they may not consider the decision at all.

I proposed that when people adopt passive decision making (i.e., they lack the ability or motivation to make the decision), they may increase their reliance on the default option, simply because the default option represents a heuristic cue signaling an easy decision shortcut (Levav, et al., 2010; Tversky & Shafir, 1992). In contrast, when people adopt active decision making (i.e., when they have the ability or motivation to make the decision), they may deliberately consider the pros and cons of the choice and will thus be less likely to be affected by the choice format. In such a situation, three possible processes may occur. First, active decision makers may be more likely to revert to pre-existing attitudes to make the decision (Albarracín & Handley, 2011), in which case the choice format may have little impact. Second, if active decision makers lack a pre-existing attitude on an issue, they may have to generate the pros and cons of the available options at the time they make a decision. One possibility is that their decisions will be affected by the true values of their options, rather than the format in which the choice is presented. Third, active decision makers may counterargue the preselected option (Tormala & Petty, 2004), leading to a reverse default effect. In line with this, research has shown that consumers who are suspicious of marketers' intent are more likely to choose non-default options (Brown & Krishna,

2004). In a nutshell, passive decision making enhances the default effect, whereas active decision making hampers the default effect (See Figure 2.1).

Because people's adoption of active or passive decision making depends upon their ability and motivation to expend effort in making a decision, I will, in the following sections, first discuss how the ability to choose may affect the default effect, and then present three studies supporting this hypothesis. After that, I will discuss how one's motivation to choose may influence the default option, and then present two studies supporting this hypothesis. Finally, I will present one study in which I investigated ability and motivation at the same time.

Figure 2.1. Theoretical framework for understanding defaults.



Ability: Role of Time

Time may often affect people's ability to make a decision in two ways. First, the time available to analyze a choice may limit one's ability to make an informed decision. For example, when one must rush to leave a cab, he/she may not be able to think through the decision about how much to tip the driver. A long line of psychological research (Dhar & Nowlis, 1999; Weenig & Maarleveld, 2002; Wright, 1974; for a review, see Ariely & Zakay, 2001) suggests that when people do not have sufficient ability to examine the information of a decision (e.g., there is pressure to leave the situation, or not enough time to read the information), they are more likely to rely on heuristics cues to make decisions. For example, people who lack decision making ability rely on heuristic cues such as price for inferring product quality (Suri & Monroe, 2003). Likewise, the default option may serve as one such heuristic cue when there is limited time to make a decision.

Second, I proposed that a time delay between learning about and implementing a decision hampers the ability to make an informed decision. For instance, although employees may receive ample information about retirement plans when they begin a new job, the enrollment deadline is often far in the future, which leads to a higher likelihood of forgetting information about said plans prior to the deadline. In this context, another long scholarly tradition indicates that prospective memory—the psychological mechanism that ensures implementation of a decision after a delay—is poorer when the delay for implementing a decision is longer (e.g., Einstein & McDaniel, 1990; Macan, Gibson, & Cunningham, 2010; Smith, 2003; for reviews, see Brandimonte, Einstein, & McDaniel, 2014). Therefore, when it comes to the default effect, a delay between the presentation of information and the implementation of a decision may lead to reduced decision making ability and reliance, however inadvertent, on the default option. In sum,

people may be more likely to rely on the default option when they have limited ability to make a decision due to either a short decision time or a time delay.

Thus I argue that the default effect should be employed only when the time is right, and a review of the literature suggests that my hypotheses are plausible. Table 2.1 presents a summary of the results and study characteristics of ten research articles, some showing the described default effects and some presenting null effects or reversals. This table also includes a description of the likely decision time as well as whether or not there is likely to be a time delay. Decision time was considered short if the situation imposed time pressure and immediate implementation (e.g., giving tips to taxi drivers) and long otherwise (e.g., deciding on a retirement plan before a deadline that is sometimes months into the future). As shown in Table 2.1, there were default effects when decision time was short (Haggag & Paci, 2014; Johnson & Goldstein, 2003; Johnson et al., 1993) and when there was a time delay between presentation and implementation of the decision (Araña, León, Moreno-Gil, & Zubiaurre, 2013; Madrian & Shea, 2001). In contrast, there were null effects, or even reversals, when the decision time was long and when there was no time delay (Brown & Krishna, 2004; Di Guida, Marchiori, & Erev, 2012; Keller et al., 2011; Shepherd & O'Carroll, 2013). This review rendered preliminary confidence in my hypotheses; subsequently, three studies in which participants made money donation decisions were conducted to test these hypotheses. Studies 1 and 2 respectively included a measure and a manipulation of the decision time participants spent in making decisions. Study 3 served to examine the effects of both the decision time and the time delay on the default effect.

Table 2.1. Summary of sample articles on the default effect.

#	Short reference	Description of participants and decision	Setting	Likely decision time	Likely a time delay	Observed effect
1	Johnson et al. (1993)	Drivers deciding whether or not to acquire the right to sue when purchasing insurance	Field	Short	No	Default effect
2	Johnson & Goldstein (2003)	Driver license applicants deciding whether or not to become organ donors	Field & Lab	Short	No	Default effect
3	Madrian & Shea (2001)	Employees deciding whether or not to enroll in a retirement plan	Field	Long	Yes	Default effect
4	Araña et al. (2013)	Individuals deciding whether or not to pay additional taxes on vacation expenditures to help prevent global warming	Lab & Field	Long	Yes	Default effect
5	Haggag & Paci (2014)	Taxi passengers deciding whether or not to tip the default percentage on a taxi ride	Lab & Field	Short	No	Default effect
6	Reiter et al. (2012)	Parents deciding whether or not to have their sons receive the vaccine against the Human Papillomavirus	Lab	Long	No	Reverse effect
7	Di Guida et al. (2012)	Experimental participants deciding whether or not to switch to a new task in the midst of the experimental session	Lab	Long	No	Null effect
8	Keller et al. (2011)	Participants deciding whether or not to receive a reminder to be vaccinated against the flu	Field	Long	No	Reverse effect
9	Shepherd & O'Carroll (2013)	Participants deciding whether or not to be organ donors	Field	Long	No	Null effect
10	Brown & Krishna (2004)	Consumers deciding whether or not to accept the default settings for specific products (e.g., keyboards, computers, and vacation packages)	Lab	Long	No	Reverse effect when people were skeptical

Study 1

I predicted that the default choice format would lead to a higher likelihood of donation than the control choice format, particularly when participants spent relatively less time making their decision. In Study 1, after being awarded extra money for participating in an unrelated prior task, participants were asked if they wanted to donate their earnings to a charity. They were given one of two instructions: that they *would* donate unless they indicated their wish not to (default condition), or that they *would not* donate unless they indicated that they did want to (control condition). I measured the time participants spent making the decision as a critical factor expected to interact with the choice format manipulation.

Method

One hundred and twenty-two participants from the Amazon Mechanical Turk website (53% female; $M_{age} = 38.07$, $SD_{age} = 13.00$, age range from 20 to 74; 98% native speakers of English; 80% Caucasian, 7% African American, 5% Hispanic, 5% Asian, 4% Other Ethnicity) were recruited to participate in this study in exchange for \$0.50. I employed a 2 choice format (default vs. control) $\times$ continuous decision time, in which choice format was a between-subjects manipulation and decision time was measured.

After participants completed an unrelated task, they were told that they would receive an additional \$0.10 payment to reward their good work on the previous task. They were then directed to read about a donation campaign for a nonprofit child cancer charity and to report whether or not they would like to donate their extra earnings to said charity. Half of the participants were told that they would make an automatic donation unless they clicked on a mark (a smiley face) on the next page (default condition). The other half was told that they would have to click on the smiley face on the next page to make a donation (control condition, see

manipulations in Appendix A). All the participants were asked to write down their understanding of the instructions to ensure successful manipulation of the choice format. A manipulation check at the end of the study showed that 96% of participants understood the choice format correctly, suggesting a successful manipulation. After that, participants proceeded to the next page and made their donation choices in the format corresponding to each condition. The time they spent making the decisions was recorded in seconds. Finally, participants reported such demographical information as gender, age, and ethnicity. At the end of the study, participants who chose not to donate received their extra \$0.10 in addition to their original payment. Any amount that was donated by participants was donated to the charitable organization as promised.

Results and Discussion

I performed a logistic regression with donation behavior (no donation = 0, donation = 1) as the outcome and choice format (control = -0.5, default = 0.5), decision time ($M = 3.75$, $SD = 3.90$, $Min = 0.44$, $Max = 30.86$), and their interaction as predictors. As shown in Table 2.2, the interaction between choice format and decision time was significant, as were the main effects of choice format and time. To probe the interaction, I used the Johnson-Neyman technique (i.e., floodlights analysis, Spiller, Fitzsimons, Lynch, & McClelland, 2013). This analysis revealed that the effect of choice format on donation was significantly positive when individuals spent less than 1.60 seconds making the decision ($B_{JN} = 0.999$, $SE = .510$, $p = .05$), but was significantly negative when individuals spent more than 3.90 seconds making the decision ($B_{JN} = -1.119$, $SE = .571$, $p = .05$; for visualization of the results, see Figure 2.2). In other words, as predicted, participants who spent relatively less time making the decision donated more with the default format than with the control format. By contrast, participants who spent relatively more time making the decision donated less with the default than with the control format.

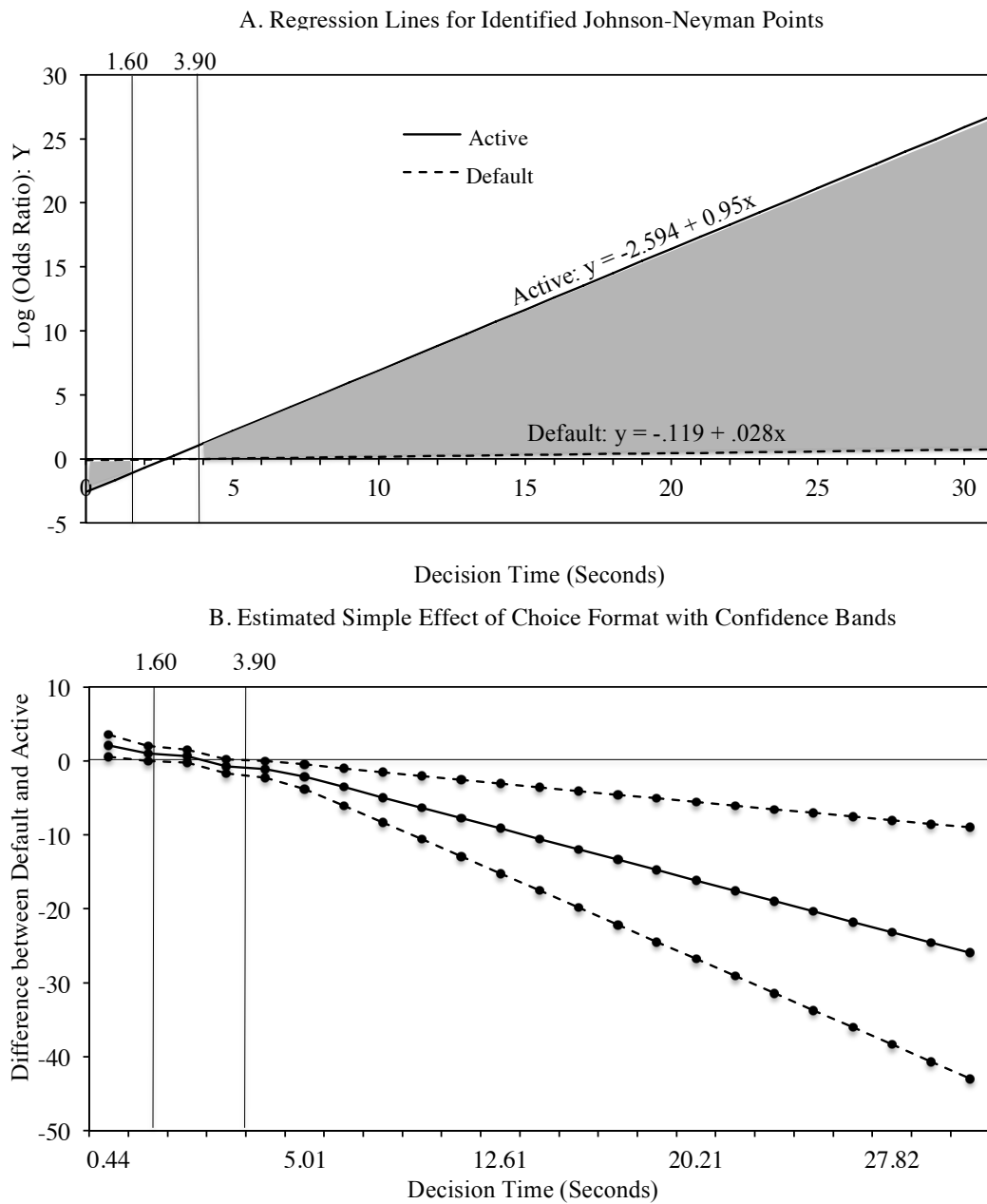
Table 2.2. Results from Study 1.

	B	S.E.	Wald χ^2	df	p	$\text{Exp}(B)$	χ^2
Model Fit				3	.001		17.029
Constant	-1.357	0.447	9.225	1	.002	0.257	
Choice Format	2.475	0.893	7.673	1	.006	11.878	
Continuous Decision Time	0.489	0.153	10.201	1	.001	1.63	
Choice format $\times$ Continuous Decision Time	-0.922	0.306	9.071	1	.003	0.398	

NOTE.— B is the estimated logit coefficient. S.E. is the standard error of the coefficient. Wald $\chi^2 = [B/\text{S.E.}]^2$. df is the degrees of freedom. p is the significance level of the coefficient. $\text{Exp}(B)$ is the odds ratio of the individual coefficient. χ^2 is the coefficient of the overall model test.

In a nutshell, Study 1 showed that the default format led to more donations than did the control format only when participants spent less (vs. more) time making the decision. Although these results were consistent with my predictions, the use of a measured variable of decision time renders it necessary to directly manipulate the decision time for a stronger demonstration. Study 2 achieved this objective.

Figure 2.2. Visualization of the results from Study 1.



NOTE.—Panel A shows a floodlight of the region of Decision Time values (filled area below 1.60 and above 3.90) for which spotlight tests revealed significant differences between the control and default choice format conditions. Panel B shows a graph of the estimated simple effect of the choice format (the distance between the two regression lines in Panel A) as a solid line with confidence bands signaled by dotted lines.

Study 2

In Study 2, I directly manipulated decision time, expecting that when the time to make the decision was limited, the default format would lead to more donations than the control format. In contrast, when the time was unlimited, the default format may have lesser or no advantage over the control format. Additionally, I used a hypothetical donation choice in Study 2 as a way of testing the robustness of the effect of decision time.

Method

One hundred and nineteen participants from the Amazon Mechanical Turk website (43% female; $M_{age} = 35.01$, $SD_{age} = 11.85$, age 19 to 66; 98% native speakers of English; 73% Caucasian, 11% African American, 7% Hispanic, 7% Asian, 3% Other Ethnicity) were recruited to participate in this study in exchange for \$0.50 payment. I used a 2 choice format (default vs. control) $\times$ 2 decision time (limited vs. unlimited) between-subjects design.

As in Study 1, participants were awarded an additional \$0.10 in earnings for a prior unrelated task and were asked to imagine that they had the opportunity to donate the additional money to the same nonprofit child cancer charity as in Study 1. They also learned that they would receive the additional funds regardless of their donation choice because it was a hypothetical donation decision (see manipulations in Appendix B). The choice format was manipulated in the same way as in Study 1, and a manipulation check showed that 97% of participants understood the choice format correctly. Furthermore, participants were told that they had either two seconds (limited time condition) or unlimited time (unlimited time condition) to make the decision. The other procedures were the same as in Study 1. At the end of the study, all the participants received their \$0.10 earnings in addition to their original payment.

Results and Discussion

I performed a logistic regression with donation behavior (no donation = 0, donation = 1) as the outcome and choice format (control = -0.5, default = 0.5), decision time (unlimited = -0.5, limited = 0.5), and their interaction as predictors. As shown in Table 2.3, the interaction between choice format and decision time was significant, as was the main effect of choice format. To probe the interaction, I ran chi-square tests comparing the control and default conditions within each decision time condition (for percentages of all the conditions, see Table 2.3). When the decision time was limited to two seconds, the default choice format (73%) led to more donations than the control choice format (31%), $\chi^2_{(1)} = 10.581, p = .001$. In contrast, when the decision time was unlimited, the default choice format (50%) had no significant advantage over the active choice format (57%), $\chi^2_{(1)} = .268, p = .605$.

The results from Studies 1 and 2 suggest that the default choice yields greater behavioral compliance; however, this effect is moderated by decision time. Participants who spent less time making the decision were more likely to comply with the default option. In contrast, participants who spent more time making their decision did not show the default effect. Instead, as in Study 1, when the decision time was long, more participants donated in response to the control choice format than the default choice format.

Table 2.3. Results from Study 2.

Regression	<i>B</i>	<i>S.E.</i>	Wald χ^2	<i>df</i>	<i>p</i>	Exp(<i>B</i>)	χ^2
Model Fit				3	.011		11.196
Constant	0.12	0.194	0.386	1	.535	1.128	
Choice format	0.771	0.388	3.958	1	.047	2.162	
Decision time	−0.028	0.388	0.005	1	.943	0.973	
Choice format × Decision time	2.078	0.775	7.192	1	.007	7.991	
Percentages of Donation							
Condition	Default	Control	Difference				
Limited Time	73%	31%	42%				
Unlimited Time	50%	57%	−7%				

NOTE.—*B* is the estimated logit coefficient. *S.E.* is the standard error of the coefficient. Wald $\chi^2 = [B/S.E.]^2$. *df* is the degree of freedom. *p* is the significance level of the coefficient. Exp(*B*) is the odds ratio of the individual coefficient. χ^2 is the coefficient of the overall model test. Difference was calculated by subtracting the percentage of donation in the Control condition from that in the Default condition.

Study 3

Studies 1 and 2 examined the influence of decision time on the default effect. In addition to replicating the effect of decision time, Study 3 further tested the effect of a time delay between the presentation of decision information and decision implementation on the default effect. As described earlier, prospective memory may be poorer when there is a delay between the presentation of information and decision implementation, leading to the use of the default option. I manipulated the time delay by asking participants to make decisions either immediately after they learned about the decision or after a delay. Concurrently, I manipulated the decision time from Study 2 by fixing the response time to be either two seconds, or unlimited. I predicted two two-way interactions: between the time delay and choice format, and between the decision time and choice format.

Method

One hundred and seventy participants from a Midwestern American university (61% female; $M_{age} = 20.08$, $SD_{age} = 1.29$, age from 18 to 27; 59% native speakers of English; 43%

Caucasian, 3% African American, 4% Hispanic, 49% Asian, 2% Other Ethnicity) were recruited to participate in this study in exchange for course credit. I employed a 2 choice format (default vs. control) $\times$ 2 decision time (limited vs. unlimited) $\times$ 2 time delay (immediate vs. delayed) between-subjects design.

After completing an unrelated task, participants were told that they would receive \$1 in addition to their class credit to reward their good work on the previous task. They were then asked to read about a donation campaign for a university athletic department, followed by the offer to donate their additional \$1 to the campaign. The choice format and the decision time were manipulated in the same way as in Study 2. The time delay was manipulated by asking participants to make the decision either immediately after they read about the campaign and the donation (immediate condition), or later, after completing an unrelated task that took approximately five minutes (delayed condition). Participants were randomly assigned to one of the eight conditions (see all the manipulations in Appendix C). Finally, participants indicated the choice format they were presented during donation choices, the results of which showed that 75% of participants answered correctly, suggesting a successful manipulation of choice format. At the end of the study, participants who chose not to donate received \$1 in addition to the promised course credit. Any amount that was donated by participants was donated to the nonprofit organization as promised.

Results and Discussion

A logistic regression was performed to predict donation behavior (no donation = 0, donation = 1) from choice format (control = -0.5 , default = 0.5), decision time (unlimited = -0.5 , limited = 0.5), time delay (immediate = -0.5 , delayed = 0.5), and all interaction terms. As shown in Table 2.4, the main effects of the choice format and the two two-way interactions—between

choice format and decision time, and between choice format and time delay—were all statistically significant. The interaction with decision time implied that the advantage of the default format was greater when the decision time was limited (vs. unlimited). The interaction with time delay suggested that the advantage of the default format was greater when the decision was implemented after a delay, rather than immediately after receiving the information. Another interesting aspect of this study is that the effects of decision time and time delay were additive—that is, a longer decision window allowed participants to avoid the default, despite the delay between receiving the information and implementing the decision.

As predicted, the results of Study 3 showed that the default effect was stronger when participants made delayed decisions compared with when they made decisions immediately. Furthermore, I replicated the previous finding that the default effect was stronger when people had little (vs. more) time to make the decision. Across the three studies, I tested whether or not the default effect was influenced by the decision time and the time delay between receiving and making a decision. To move beyond the default option requires an informed decision that involves information encoding and thoughtful, timely decision implementation. Limited decision time hampers the ability to encode information to make an informed decision, and prolonged time delay further limits prospective memory and thus adequate execution of the decision. Both limitations in ability can induce reliance on the default as is likely with other forms of heuristic processing.

Table 2.4. Results from Study 3.

	<i>B</i>	<i>S.E.</i>	Wald χ^2	<i>df</i>	<i>p</i>	Exp(<i>B</i>)	χ^2
Model Fit				7	<.001		51.11
Constant	−0.208	0.191	1.195	1	.274	0.812	
Choice format	2.202	0.381	33.405	1	<.001	9.044	
Decision time	0.266	0.381	0.489	1	.484	1.305	
Time delay	0.021	0.381	0.003	1	.956	1.021	
Choice format * Time delay	1.567	0.762	4.229	1	.04	4.793	
Choice format * Decision time	1.652	0.762	4.699	1	.03	5.216	
Decision time * Time delay	−0.651	0.762	0.729	1	.393	0.522	
Choice format * Decision time * Time delay	1.748	1.524	1.315	1	.251	5.742	

		Percentages of Donation		
Condition		Default	Control	Difference
Immediate	Limited time	73%	30%	43%
	Unlimited time	50%	26%	24%
Delayed	Limited time	87%	9%	78%
	Unlimited time	67%	26%	41%

NOTE.—*B* is the estimated logit coefficient. *S.E.* is the standard error of the coefficient. Wald $\chi^2 = [B/S.E.]^2$. *df* is the degree of freedom. *p* is the significance level of the coefficient. Exp(*B*) is the odds ratio of the individual coefficient. χ^2 is the coefficient of the overall model test. Difference was calculated by subtracting the percentage of donation in the Control condition from that in the Default condition.

Motivation: Role of Choice Involvement

In the following section, I will further discuss how the motivation to make a decision has an impact on the default effect, and will present three studies demonstrating the effect.

Motivation in making a decision may be affected by individuals' personal involvement with a given choice. According to the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986; Petty et al., 1983), *high-personal-relevant* choices that are typically associated with self-interest are more motivating than *low-personal-relevant* choices, which are made considering public gains and normative pressure to act in a selfless, altruistic manner. Although some decisions may be both high- and low-personal-relevant (e.g., savings in taxes from certain philanthropic efforts), they can be empirically and theoretically distinguished. When making a

low-personal-relevant choice, people are less motivated to consider the pros and cons of different options, and may intentionally choose the default option ostensibly suggested by policymakers—or unintentionally end up with the default option if they do not make a decision at all.

In contrast, when making a high-personal-relevant choice, people are more likely to be motivated to exert effort in making a decision. Three psychological processes may arise when decision makers actively consider choices. First, they may be more likely to retrieve their pre-existing attitudes to make the decision (Albarracín & Handley, 2011). As a result, the choice format may have little impact. Second, if active decision makers lack a pre-existing attitude about an issue, they may generate the pros and cons of the available options at the time they make a decision. In this case, one possibility is that they may choose based on the true value of the options rather than the choice format, leading to a null effect of the choice format. Third, active decision makers may even counterargue the preselected option (Tormala & Petty, 2004), leading to a reverse default effect. Consistent with this prediction, consumers who are suspicious of the intent of marketers are more likely to choose the non-default options (Brown & Krishna, 2004).

In sum, when people are less motivated to invest effort in making a decision (i.e., making low-personal-relevant choices), they may be more likely to comply with the default option, resulting in the previously identified default effect. However, when decision makers are more motivated to input effort in making a decision (i.e., when they are making high-personal-relevant choices), they may either be immune to the choice format or increase behavioral compliance in a way that produces a reverse default effect. In a nutshell, the processes and potential outcomes of the choice format may depend on whether or not people have the motivation to invest effort in making the decision.

In the following sections, I present three studies in which participants either made high-personal-relevant or low-personal-relevant choices. Hypothetically, when people make low-personal-relevant choices, they have low motivation to make a deliberate decision, leading them to rely on the default option. In contrast, when people make high-personal-relevant choices, they have high motivation to make a deliberate decision, leading them to overcome the effect of choice format. In the latter case, people may even counterargue the default option, inducing a reverse default effect.

Study 4

In Study 4, I manipulated the choice types to be either low- or high-personal-relevant. Participants were asked to decide whether or not they would participate in an additional survey for extra money (high-personal-relevant choice) or whether or not they would donate extra money to a charity (low-personal-relevant choice). I predicted that the default effect would be present in low-personal-relevant choices, but would be weaker and even reversed in high-personal-relevant choices.

Method

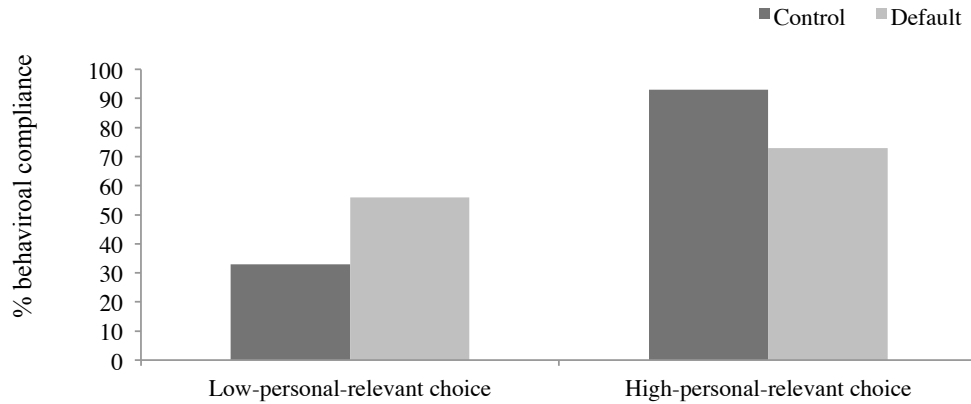
Participants and design. One hundred and fifty-nine participants (57% female; $M_{age} = 38.28$, $SD_{age} = 13.67$, aged from 18 to 71; 98% native speakers of English; 77% Caucasian, 13% African American, 1% Hispanic, 4% Asian, 4% Other Ethnicity) recruited from the Amazon Turk online subject pool participated in exchange for \$0.50. The study employed a 2 choice type (low-personal-relevance vs. low-personal-relevance choice) x 2 choice format (default vs. control) between-subjects design. Participants were randomly assigned to any of the four conditions in the design.

Procedure and measures. In the low-personal-relevant choice conditions, as in Study 1, participants received \$0.30 as an additional reward for their efforts after completing an unrelated task. They were then asked if they wanted to donate the additional \$0.30 to the nonprofit child cancer organization. Participants made their choices with either the default or the control format. In the high-personal-relevant choice conditions, participants were told after completing the same unrelated task that they would receive an additional \$0.30 as a reward if they completed an additional short survey that lasted five minutes. They further learned that this additional survey did not require a large number of responses, and that they were free to decide whether or not to complete it. The participants then made their choices with either the default or the control format (see all the manipulations in Appendix D). I expected the default effect to emerge in the low-personal-relevant choices and a reverse default effect to emerge in the high-personal-relevant choices.

Results & Discussion

As predicted, the logistic regression showed that the interaction between choice type and choice format was significant, $B = .633, SE = .21, Wald_{(1)} = 9.104, p = .003$. Specifically, the default effect emerged in the low-personal-relevant choices, with participants being more likely to donate in response to the default format (56%) than the control format (33%), $\chi^2_{(1)} = 4.575, p = .032$. In contrast, the reverse default effect arose in the high-personal-relevant choices, with participants being more likely to choose to participate in an additional survey in response to the control (93%) rather than the default option (73%), $\chi^2_{(1)} = 5.541, p = .019$ (see Figure 2.3). These results confirmed my hypothesis that, while the default format leads to more behavioral compliance when people are less motivated to make the decision, the control choice format leads to more behavioral compliance when people are more motivated to make the decision.

Figure 2.3. Mean behavioral compliance (Study 4).



Study 5

In Study 5, I intended to replicate the results of Study 4 by decreasing the amount of money to test the robustness of the results. Study 5 proceeded using the exact same procedure from Study 4, except that the monetary amount decreased from \$0.30 to \$0.01. By significantly decreasing the stakes, the relative valence of the choice type may be reversed—that is, while donating \$0.30 is less positive than earning \$0.30, donating \$0.01 should be more positive than earning \$0.01. If the combined effects of the choice type and choice format still emerge, it would suggest that this effect may be less likely explained by such theories as approach-avoidance motivation (Elliot & Church, 1997) and regulatory focus theory (Higgins, 1997) that would suggest the results are sensitive to valence of the choice type.

Method

Participants and design. Two hundred and ninety three participants (58% female; $M_{age} = 37.38$, $SD_{age} = 13.21$, age from 18 to 79; 98% native speakers of English; 77% Caucasian, 10% African American, 4% Hispanic, 6% Asian, 3% Other Ethnicity) from the Amazon Mechanical Turk online subject pool participated in exchange for \$0.50. The study employed a 2 choice type

(high-personal-relevant choice vs. low-personal-relevant choice) $\times$ 2 choice format (default vs. control) between-subjects design. Participants were randomly assigned to any of the four experimental conditions.

Procedure and measures. The procedure of Study 5 was the same as that of Study 4. The only difference was that the extra reward decreased from \$0.30 to \$0.01 (see all the manipulations in Appendix E).

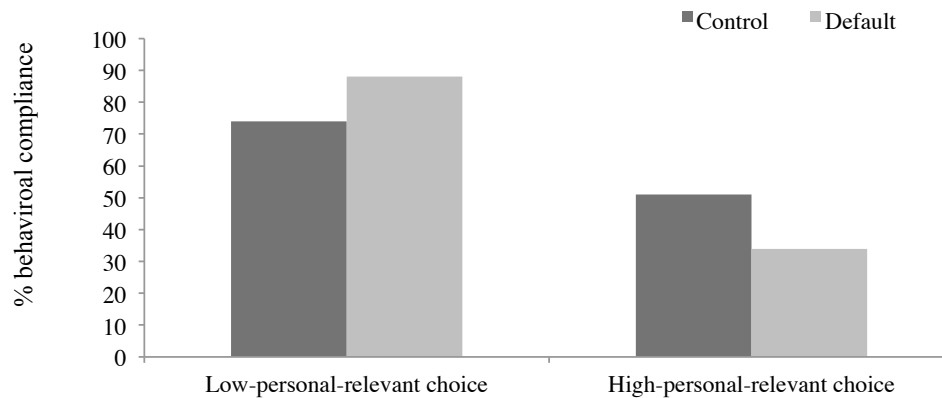
Results & Discussion

Even with a decreased extra reward, the pattern of the results mirrored that of Study 4. The logistic regression suggested that the interaction between choice type and choice format was statistically significant, $B = -.593$, $SE = .14$, $Wald(1) = 17.99$, $p < .001$. Confirming the default effect for low-personal-relevant choices, participants assigned to low-personal-relevant conditions were more likely to donate their money when they were presented with the default option (88%) than with the control option (74%), $\chi^2_{(1)} = 4.257$, $p = .039$. Similarly, confirming the reverse default effect for high-personal-relevant choices, participants assigned to the high-personal-relevant conditions were more likely to participate in the additional survey when they were presented with the control option (51%) than with the default option (34%), $\chi^2_{(1)} = 4.671$, $p = .031$ (see Figure 2.4).

These results demonstrated the robustness of the combined effects of the choice type and choice format across the relative valence of the choice type. A further analysis combining the results of the two studies suggests that when the monetary amount was greater (i.e., \$0.30), the percentage of participants who chose to earn this amount (83%) was significantly higher than that of participants who chose to donate this amount (44%), $\chi^2_{(1)} = 25.027$, $p < .001$, suggesting that earning \$0.30 was more positive than donating the same amount. In contrast, when the

monetary amount was small (i.e., \$0.01), the percentage of people who chose to donate this amount (81%) was significantly higher than that of participants who chose to earn this amount (43%), $\chi^2_{(1)} = 44.926, p < .001$, suggesting that donating \$0.01 was more positive than earning \$0.01. Therefore, the relative valence of the choice type varied as a function of the monetary amount. Yet, regardless of the relative valence of the choice type, the default effect showed in the low-personal-relevant choices, whereas the reverse default effect emerged in high-personal-relevant choices. This suggests that alternative explanations associated with valence (e.g., Approach-Avoidance motivation (Elliot & Church, 1997); Regulatory Focus Theory (Higgins, 1997) may be less likely to explain the different impacts of low- or high-personal-relevant choices on the default effect.

Figure 2.4. Mean behavioral compliance (Study 5).



Study 6

In Study 6, I investigated the effects of ability and motivation on the default effect within the same study. Participants were asked to make the same low-personal-relevant choice (i.e., donation). Before that, they were induced to either think in favor of their own interest, or think in favor of others' interest. In the control condition, people were not induced to think anything before making the decision. Presumably, when the motivation to make a decision is high (i.e., the decision is in one's own interest), people may counterargue the default and show the reverse default effect. In contrast, when the motivation to make a decision is low (i.e., the decision is in another's interest or control), people may passively rely on the default option. To gauge the effects of ability, I measured the time people spent making the decision, as in Study 1. I predicted that the effect of motivation on compliance with the default option would be more evident when people spent less (vs. more) time making their decision.

Method

Participants and design. Three hundred and seventy participants from the Amazon Turk Website (45% female; $M_{age} = 35.39$, $SD_{age} = 11.526$, age from 18 to 69; 98% native speakers of English; 75% Caucasian, 6% African American, 7% Hispanic, 9% Asian, 2% Other Ethnicity) participated in this study in exchange for \$0.50. The study employed a 3 motivation (self-interest vs. other-interest vs. control) x 2 choice format (default vs. control) x a continuous decision time mixed design. Participants were randomly assigned to any of the six conditions in the design. Additionally, decision time was measured and analyzed as a continuous variable.

Procedure and measures. After participants finished an irrelevant task, they were rewarded an extra \$0.30. Participants were directed to another study, and were told to make decisions in favor of either their own interest or others' interest. In the control condition, neither

self-interest nor other-interest was mentioned. Then participants were asked if they would like to donate their extra earnings to a charity. They were presented with either the default choice format or the control choice format, as in previous studies (see all the manipulations in Appendix F). I also measured decision time (log transformed) as I did in Study 1.

Results and Discussion

Effects on behavioral compliance. As predicted, the logistic regression was performed to predict donation behavior from choice format (control = 1, default = 0), motivation (self=1, control=2, other = 3, analyzed as a continuous variable)², the decision time (continuous variable), and all interaction terms. Results suggested that there was a three-way interaction, $Wald(1) = 6.061, p = .014$. I used the *PROCESS* procedure (Model 3, Preacher, Rucker, & Hayes, 2007) to probe the interaction. With a shorter decision time ($SD(\text{decision time}) = -1$), the interaction of choice format and motivation on donation was significant, $Z = 2.187, p = .03$. Participants in the low motivation condition (i.e., the decision was in others' interest) were more likely to donate with the default format than with the control format, $Effect = 1.22, p = .03$, whereas the advantage of the default option was attenuated when participants had high motivation to make a decision in their own interest, $Effect = -.47, p = .34$. Participants in the control condition fell in the middle. However, with a longer decision time ($SD(\text{decision time}) = 1$) during which participants were able to make a deliberate decision, the results suggested a reverse default effect. Participants were more likely to donate with the control format than with the default format when they had low motivation, $Effect = -1.17, p = .02$ and in the control condition, $Effect = -.73, p = .031$. Noticeably, the choice format had no effect on the donation when people had high

² When the motivation was analyzed as two dummy variables (dummy 1: other = 1, self & control = 0; dummy 2: control = 1, self & other = 0), the three-way interaction was still significant, $Wald(2) = 6.036, p = .049$.

motivation and longer decision time, $Effect = -.29, p = .49$. These results (see Table 2.5) suggested that ability and motivation might interact with each other to influence people's decisions with the default option.

Table 2.5. Conditional effects of choice format and motivation on donation with short and long decision time.

Ability	Motivation	<i>Effect</i>	<i>SE</i>	<i>Z</i>	<i>p</i>	<i>95% CI</i>
Low ability (Shorter decision time)	Low motivation (i.e., thinks in others' interest)	1.22	.55	2.20	.03	(.13, 2.30)
	Control	.38	.38	.99	.324	(-.37, 1.12)
	High motivation (i.e., thinks in own interest)	-.47	.53	-.882	.378	(-1.51, .57)
High ability (Longer decision time)	Low motivation (i.e., thinks in others' interest)	-1.17	.50	-2.34	.02	(-2.15, -.19)
	Control	-.73	.34	-2.16	.031	(-1.40, -.07)
	High motivation (i.e., thinks in own interest)	-.29	.43	-.685	.494	(-1.14, .55)

General Discussion

Despite the attention paid to the default effect in research over the years, the influence of ability and motivation on said effect has remained unclear even though both factors are critical in persuasion (Darley & Smith, 1993; Kang & Herr, 2006; Petty et al., 1983; Shavitt et al., 1994). Across six studies, my research investigated an important boundary factor of the default effect, i.e., whether people engage in active decision making or passive decision making when considering the default option (for a summary of all studies, see Table 2.6). Active decision making results from high motivation and high ability to make a decision, whereas passive decision making results from either low motivation or low ability to make a decision. I proposed that people who engaged in passive decision making were more likely to rely on the default option, leading to the documented default effect. However, people who engaged in active

decision making were more likely to be either immune to the choice format or counterargue the default option, leading to a null effect or a reverse default effect. Studies 1-3 manipulated high vs. low ability to make a deliberate decision through long vs. short decision time and a time delay. Studies 4 and 5 manipulated high vs. low motivation to make a deliberate decision through high-personal-relevant vs. low-personal-relevant choices. Study 6 manipulated ability and motivation together through decision time and motivation for donation. Taken together, the six studies confirmed my hypothesis that active vs. passive decision making—as a function of ability and motivation—moderated the default effect. Furthermore, I found that people with high motivation to make a decision (e.g., those making high-personal-relevant choices) might counterargue the default option, showing the reverse default effect. This reverse default effect was interesting, although its robustness warrants further testing. Nevertheless, it suggests that people who engage in active decision making may not prefer an imposed default option.

This research has implications in designing appropriate choice structure to promote recommended behavior. Let's take charitable donations, for example. Since individual donors constitute the primary contributors to charitable organizations in the USA, contributing about 70% of all U.S. donations in recent years (Giving USA, 2015), methods to increase these donations are of central concern to both fundraisers and social scientists (Ariely, Bracha, & Meier, 2009). One line of research claims that the intrinsic motivation of beneficence drives donation behavior (Meier, 2007). As a result, individual giving may increase in response to communications that highlight the significance of giving. A different line of research, however, suggests that philanthropy often depends on extrinsic, seemingly inconsequential cues such as *thank you* wristbands and tax breaks (Ariely et al., 2009). This second view contends that minor situational factors, and thus simple external interventions, are likely to shape giving behavior. My findings

dovetail well with this later work and illuminates new intervention possibilities—i.e., the default choice format—to increase philanthropy. Furthermore, my results suggest that the default option is likely to take effect when people make decisions passively.

Table 2.6. Summary of all studies.

#	Factor	Type of decision	Topic	Participants	N	Default	Control	Diff (D-C)	d (D-C)
1	Ability	Donation	Participants deciding whether or not to donate extra \$0.1 reward to a child cancer organization	MTurkers	122	50%	48%	2%	.04
2	Ability	Donation	Participants deciding whether or not to donate extra \$0.1 reward to a child cancer organization hypothetically with unlimited decision time	MTurkers	60	50%	57%	-7%	-0.15
		Donation	Participants deciding whether or not to donate extra \$0.1 reward to a child cancer organization hypothetically with 2 seconds decision time	MTurkers	59	73%	31%	42%*	0.99
3	Ability	Donation	Participants deciding whether or not to donate extra \$1 reward to an athletic department with 2 seconds decision time	Undergraduates	45	73%	30%	43%*	1.01
		Donation	Participants deciding whether or not to donate extra \$1 reward to an athletic department with unlimited decision time	Undergraduates	39	50%	26%	24%*	.58
		Donation	Participants deciding whether or not to donate extra \$1 reward to an athletic department with 2 seconds of decision time, after being delayed by a task	Undergraduates	46	87%	9%	78%*	2.32
		Donation	Participants deciding whether or not to donate extra \$1 reward to an athletic department with unlimited decision time, after being delayed by a task	Undergraduates	40	67%	26%	41%*	.97
4	Motivation	Earning	Participants deciding whether or not to participate in an additional survey for an extra \$0.3 reward	MTurkers	80	73%	93%	-20%*	-.88
		Donation	Participants deciding whether or not to donate extra \$0.3 reward to a child cancer organization	MTurkers	79	56%	33%	23%*	.52
5	Motivation	Earning	Participants deciding whether or not to participate in an additional survey for an extra \$0.01 reward	MTurkers	148	34%	51%	-17%*	-.39
		Donation	Participants deciding whether or not to donate extra \$0.01 reward to a child cancer organization	MTurkers	145	88%	74%	14%*	.52
6	Ability & Motivation	Donation	Participants deciding whether or not to donate extra \$0.3 reward to a child cancer organization with unlimited decision time, after being induced to think about own interest	MTurkers	123	34%	26%	8%	.21
		Donation	Participants deciding whether or not to donate extra \$0.3 reward to a child cancer organization with unlimited decision time, after being induced to think about others' interest	MTurkers	123	34%	33%	1%	.02
		Donation	Participants deciding whether or not to donate extra \$0.3 reward to a child cancer organization with unlimited decision time	MTurkers	124	26%	32%	-6%	-.16

NOTE.— * denotes that the difference was significant at $p < .05$.

CHAPTER 3

ACTING BY A DEADLINE:

THE EFFECTS OF ACTION-INACTION GOALS ON CONSUMER DECISIONS

Deadlines can promote actions in compliance with various recommendations, from purchasing products (Aggarwal et al., 2011; Brannon & Brock, 2001a; Inman et al., 1997) to signing up for health plans (Shu & Gneezy, 2010). They often work because they can focus people's attention on offers or serve as heuristic cues that signal good, *must have* products (for reviews, see Brock & Mazzocco, 2004; Cialdini, 2001; Lynn, 1991). In so doing, deadlines are likely to operate within the broader motivational state of an individual. This paper is concerned with the question of whether general action or inaction goals can be brought to bear when people make a decision by a deadline. Specifically, will more immediate deadlines instill greater compliance with an offer when recipients have an action goal or an inaction goal?

In this research, I examined how general action and inaction goals elicited by ordinary physical activities affect purchase behaviors when deadlines are present. Drawing from extant literature on general action and inaction goals (Albarracín et al., 2008; Albarracín, Hepler, & Tannenbaum, 2011; Gendolla & Silvestrini, 2010; Laran, 2010) and embodied cognition (Cacioppo, Priester, & Berntson, 1993; Krishna & Schwarz, 2014; Williams & Bargh, 2008), I proposed that both actual and imagined physical behaviors trigger general action or inaction goals. Specifically, active behaviors (e.g., walking, running) may provoke general action goals, whereas inactive behaviors (e.g., standing, sitting) may elicit general inaction goals. Once the general goals are activated, they may affect perceived motivational fit with action cues such as deadlines, that influence subsequent, unrelated behavior. When the deadline signals immediate action, people with a general action goal may perceive a better motivational fit than those who

have a general inaction goal. By contrast, deadlines that signal distant action may render general action-inaction goals less relevant and therefore less impactful.

This line of reasoning has two implications. First, immediate deadlines are likely to be more action-relevant and garner more attention compared to distant deadlines. Second, when the deadline requires action or has relevance for ongoing decisions, preexisting general goals may be engaged in connection to the present situation. When this connection is made, people with general action goals may perceive better fit with the current situation than do those with general inaction goals. This notion is similar to that of the regulatory fit, in which existing, temporary or chronic promotion (vs. prevention) goals are readily applicable to promotion-focused messages and decisions (Avnet & Higgins, 2006; Cesario, Grant, & Higgins, 2004; Lee & Aaker, 2004). In this case, general action or inaction goals may be more relevant in contexts that engage immediate action decisions than in contexts where behavioral decisions may be delayed into the distant future. These ideas were examined in four studies, in which I drew upon enacted or recalled behaviors (e.g., walking, standing) to manipulate general action and inaction goals, and tested my hypothesis across various consumption and health scenarios, including real coupon redemption and a hypothetical flu shot. These studies are presented after a review of relevant literature and a description of my novel hypotheses.

General Action-Inaction Goals and Deadlines

Deadlines often signal the need to mobilize cognitive and physical effort (Aggarwal, Jun, & Huh, 2011; Ariely & Wertenbroch, 2002; Inman et al., 1997; for reviews see Cialdini, 2001; Brock & Mazzocco, 2004; Lynn, 1991). Recent research has identified that overall levels of cognitive and physical effort mobilization can be regulated by general action and inaction goals (Albarracín et al., 2008; Albarracín, Wang, & Leeper, 2009; Gendolla & Silvestrini, 2010; Laran,

2010; for reviews see Albarracín et al., 2008; Albarracín, Hepler, & Tannenbaum, 2011). The two lines of research, though disconnected in the extant literature, hinge together in the present work by bearing on the same point of effort mobilization.

General Action and Inaction Goals

General action or inaction goals, once activated, motivate individuals to attain active and inactive end states through a variety of behavioral means. In contrast with specific goals (e.g., Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Kruglanski et al., 2002), general goals affect behaviors regardless of the type of behavior being considered. Albarracín and colleagues incidentally exposed participants to either action-related words (e.g., *active*, *go*, *move*) or inaction-related words (e.g., *sleep*, *stop*, *stand*) to prime the general action and inaction goals. They found that people exposed to action-related words put forth more effort and showed a higher level of activity in various situations than did those exposed to inaction-related words. As examples, participants in action conditions selected drawing over sleeping, ate more snacks, solved more intellectual problems, and exercised longer than did participants in inaction conditions (Albarracín et al., 2008, 2009). Moreover, regions with higher naturally occurring general action tendencies— indexed by daily physical exercise and stimulant use—had more political participation as indicated by turnout to presidential elections (Noguchi, Handley, & Albarracín, 2011). In sum, there is evidence that general action and inaction goals affect various types of behaviors. Yet there remains a dearth of knowledge as to how and when these general goals are *connected* to a particular situation that generates specific goals.

Deadlines

Immediate deadlines, compared with distant deadlines, can promote action through mobilizing more behavioral and/or cognitive effort (Aggarwal et al., 2011; Ariely, Ockenfels, &

Roth, 2005; Ariely & Wertenbroch, 2002; Brannon & Brock, 2001a; Inman et al., 1997; for reviews see Cialdini, 2001; Brock & Mazzocco, 2004; Lynn, 1991). For instance, when a deadline is tighter, people are more likely to take actions such as purchasing products (Aggarwal et al., 2011; Brannon & Brock, 2001a; Inman et al., 1997), signing up for health plans (Shu & Gneezy, 2010), bidding for auctions (Ariely et al., 2005; Roth & Ockenfels, 2002), or making difficult decisions (Dhar & Nowlis, 1999). Furthermore, deadlines may also increase elaboration on the messages. For instance, people buy more limited-time candy when the promotional message provides more favorable descriptions of the product, but not when the message provides less favorable descriptions (Brannon & Brock, 2001b; also see Inman et al., 1997), suggesting that deadlines increase evaluation of the offers. In a nutshell, immediate deadlines often create pressure for more behavioral and cognitive effort.

Such effort-demanding situations may create ideal conditions for goal engagement (Atkinson, 1958; Brehm & Self, 1989; Gendolla, 1999; Smith & Oyserman, 2015). Specifically, in situations demanding effort, people may employ available goals to guide their effort mobilization. In a study about memory performance, participants who were primed (vs. not primed) with a performance goal exerted more effort only when the memory task was difficult, but not when the memory task was easy—suggesting that the effort-demanding situation made available goals relevant and likely to be engaged in the specific context (Gendolla, 1999). This demonstration of the effect of task difficulty by Gendolla (1999) was seminal but does not speak directly to my question about the role of *time* in decisions. In a very different context, I proposed that the behavioral and cognitive effort inspired by an immediate deadline may enable the connection of general action and inaction goals in specific present contexts. That is, the effect of general action and inaction goals on decisions may be more likely to be observed in immediate

vs. distant contexts. To the best of my knowledge, this important theoretical aspect has never been tested directly. Elucidating interactions between general action-inaction goals and temporal contexts should therefore contribute to—and go above and beyond—all prior work.

In summary, I proposed to consider the influence of immediate vs. distant deadlines in relation to such motivational states as general action and inaction goals. When a potential purchase is constrained by an immediate deadline, people primed with a general action goal may be more likely to purchase than those primed with a general inaction goal, because purchasing before the immediate deadline requires more behavioral and cognitive effort, which facilitates the employment of general action and inaction goals. By contrast, distant deadlines may create less ideal conditions for the engagement of general action and inaction goals. Of course, distant deadlines could, in principle, work with general inaction goals. For example, past research has shown that participants who were primed with general inaction goals by slogan such as *You Deserve a Break Today* enjoyed processing simple product information to a larger extent than did those who were primed with general action goals by slogans such as *Just Do It*. In contrast, action primes lead to increased enjoyment of processing complex product information to a larger extent than did inaction primes (Laran, 2010). However, with regard to deadlines, considerable evidence points to the fact that distant deadlines reduce attention and are dismissed by consumers as motivational opportunities (Cialdini, 2001; Brock & Mazzocco, 2004; Lynn, 1991). Thus, I favored the prediction that distant deadlines would reduce or eliminate the effect of general action-inaction goals.

Overview of The Present Research

In the present research, I proposed that action and inaction goals may be primed by enacted or recalled physical behaviors, such as walking and sitting. Whereas in past work, action

and inaction goals were elicited by presenting words (Albarracín et al., 2008; Gendolla & Silvestrini, 2010), advertisements (Albarracín et al., 2009), or slogans (Laran, 2010), I proposed that physical behavior may also activate general action and inaction goals. In particular, active behaviors (e.g., walking, running) may provoke general action goals, whereas inactive behaviors (e.g., standing, sitting) may elicit general inaction goals.

This proposition is supported by several streams of research. The development of gross motor skills including sitting, standing, walking and running often accompany the pursuit of active and inactive behavioral goals from infancy, when finer motor skills are still undeveloped (Kopp, 1982; Thelen, 1995). Therefore, general action-inaction goals may be fundamentally tied to these gross motor behaviors, as another example of the embodiment of motivation (e.g., Cacioppo et al., 1993; Centerbar & Clore, 2006; Hung & Labroo, 2011; Yap, Wazlawek, Lucas, Cuddy, & Carney, 2013). Furthermore, researchers have often used words representing active behaviors such as *move* and *go* to stimulate general action goals, and those representing inactive behaviors such as *stand* and *sleep* to elicit general inaction goals (Albarracín et al., 2008; Laran, 2010; Gendolla & Silvestrini, 2010; Silvestrini & Gendolla, 2013; see also Voracek & Sonleitner, 2015). The success of those primes may indicate that some of these specific words were ideally positioned to prime general action and inaction goals. In contrast to previous research emphasizing particular modules of bodily sensation and movement connected to specific concepts (e.g., Lee & Schwarz, 2010; Topolinski, Maschmann, Pecher, & Winkielman, 2014), I proposed that gross motor movement may elicit corresponding mental representations of action or inaction that in turn activate general action-inaction goals. Once in place, these general goals may influence purchase decisions depending on the deadlines of the marketing offers. When consumption is possible only by an immediate deadline, those primed with a general

action goal may increase effort and thus increase purchase intention to a greater extent than those primed with a general inaction goal. In contrast, when the purchase behavior is accompanied by a distant deadline, decisions may not be affected by general goals.

I tested my hypothesis via one field experiment and three lab experiments. Imminent deadlines lead to greater compliance with the recommended behavior after being primed with action rather than inaction goals. In Study 1, I distributed coupons with various deadlines to participants who were walking or standing in a student union and measured coupon redemption behaviors. In Study 2, I asked participants who were either walking or standing, and had respectively higher and lower levels of action goals, to indicate their intentions for upcoming behavioral decisions with various time limits. In Study 3, I manipulated participants' general action or inaction goals by having them imagine running or standing, thus replicating the effects of these activities with a mental manipulation of goals. Study 4 tested the proposed fit as a mechanism underlying the predicted effect. A control condition was introduced in Studies 2 and 4. Control conditions in the area of general action-inaction goals are relatively uninformative because experimental participants come to the laboratory with an ongoing motivational state that is more or less active, and there is no natural neutral state. The default for study participants is often active, as they are engaged in daily pursuits and have normally just commuted to the lab (see e.g., Albarracín et al., 2008). Thus, the nature of an induced goal is best established by comparison with a subjective standard such as self-reported activity (i.e., is the supposed action goal condition subjectively active?) than by comparison with a control that may also be active. Nonetheless, a control condition is critical to ensure that the experimental goal conditions are neither above nor both below a baseline control, as that would imply the induction of either two action goals or two inaction goals (for an elaboration of this problem, see Albarracín et al., 2008).

Study 1 was important in measuring behavioral decisions in a naturalistic context but is naturally less precise than the three subsequent experiments manipulating action and inaction goals. Specifically, the field study included an observation of natural movement (sitting or walking) in a student union, with the purchase of beverage and food items with immediate or delayed deadlines being manipulated. As one might expect, people who sit might regularly spend more time at the union and thus be more habitual consumers, which required us to take into account purchasing baselines that may correlate with movement. Fortunately, the use of an experimental methodology in later studies permitted more direct casual conclusions with manipulated perceived or actual movement. The experiments observed effects on purchasing intentions but also measured subjectively experienced action goals, as the process was presumably affected by movement. Furthermore, these experiments allowed us to rule out effects of movement with positive or negative affect (Miller & Krizan, 2016), and thus isolate psychological processes much more precisely. They also allowed us to compare whether the effects of movement were likely mediated by action goals as opposed to affective consequences of such goals on arousal levels (e.g., experienced fatigue or boredom).

Study 1

In Study 1, I carried out a field experiment to test the effect of the general action-inaction goals instilled by ordinary physical activities on redemption of real coupons by various deadlines. Participants who were either walking or sitting in a student union received coupons for use at a local café within the union by either an immediate or distant deadline. I then analyzed redemption rates as a function of the naturally occurring action (walking) or inaction (sitting) and the manipulated deadlines.

Method

Pretest. As participants sitting in the lounges of the student union might spend more time in the building than those who just pass by, those who were sitting might have had a higher chance of visiting the local café than those who were passing by. I thus pretested the baseline likelihood of making purchases in the café among people who were either walking or sitting in the lounges of the student union. Two research assistants who were blind to the hypotheses approached 60 individuals (45% female) who were either walking or sitting in the lounges of the union. To exclude any unwanted effects from social influence and past behavior, the research assistants only approached people who were alone and did not have any visible beverage or food items at the time. Each participant was asked five questions with response options of *yes* or *no*. These questions and the corresponding percentages of participants who responded *yes* were: (1) *Are you likely to purchase any food or beverage items from the Espresso Royale café at the Union today?* (Walking vs. Sitting: 6.7% vs. 26.7%, $\chi^2_{(1)} = 4.320, p = .038$); (2) *Have you purchased anything from the Espresso Royale café in the past?* (Walking vs. Sitting: 53% vs. 80%, $\chi^2_{(1)} = 4.800, p = .028$); (3) *Have you purchased anything from any other establishments at the Union in the past?* (Walking vs. Sitting: 83% vs. 93%, $\chi^2_{(1)} = 1.456, p = .228$); (4) *Have you purchased anything from the Espresso Royale today?* (Walking vs. Sitting: 13% vs. 3%, $\chi^2_{(1)} = 1.964, p = .161$) and (5) *Are you likely to purchase any food or beverage items from any of the establishments at the Union today?* (Walking vs. Sitting: 46.7% vs. 26.7%, $\chi^2_{(1)} = 2.584, p = .108$).

As shown by the results, more participants sitting in the lounges of the union had made a purchase in the Espresso Royale café in the past and indicated higher intentions to shop in the café on the day of the study than those who walked in the union. These results confirmed my

prediction that people who sat in the union were more likely to be consumers at the café than people who simply walked by. As intentions predict future behaviors (Albarracín, Johnson, Fishbein, & Muellerleile, 2001; Albarracín & Wyer, 2000; Fishbein & Ajzen, 1975), I used participants' intentions to shop in the café on this day as the baseline likelihood of purchasing at the café in the future, and included it as a covariate in the main analyses.

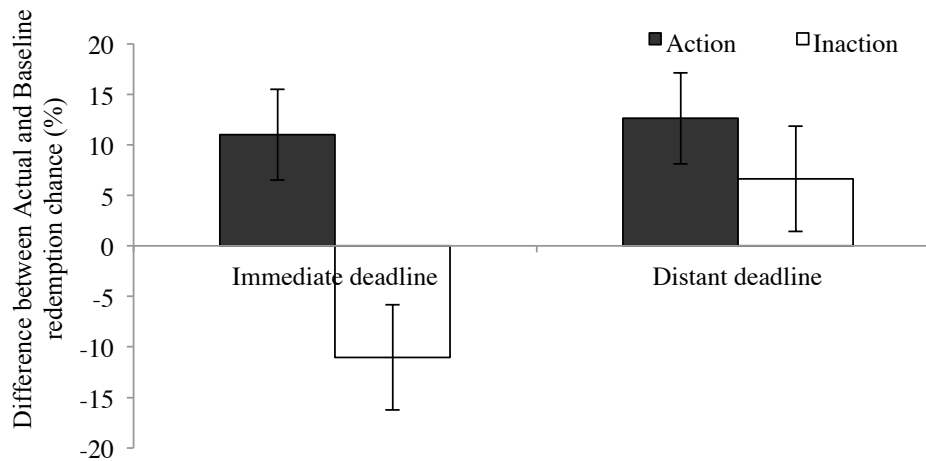
Main experiment. I employed a 2 General Action-Inaction Goals (Action vs. Inaction) $\times$ 2 Deadline (Immediate vs. Distant) between-subjects design, with the goal being a variable triggered by naturally occurring walking or sitting. Two research assistants unaware of my hypotheses approached people who either walked (action goal) or sat (inaction goal) alone in the union and offered them coupons worth one dollar at the café. Coupons would either expire in one hour (immediate deadline) or be valid throughout the day (distant deadline) and could be used to purchase any of the café products. In total, five hundred and sixty-one coupons were distributed on the day of my study, and one hundred and twenty coupons (21%) were redeemed in the café by the end of that day.

Results and Discussion

Coupon redemption behavior. A logistic regression was performed with the coupon redemption behavior as the outcome and action (effect coding: action = 1, inaction = -1), deadline (effect coding: immediate = 1, distant = -1), their interaction term, and the base purchase intention as predictors. The omnibus test suggested that the model was significant, $\chi^2_{(3)} = 14.705, p = .002$. As predicted, the interaction between the action and the deadline on coupon redemption was significant, $B = 0.220, p = .038$. Furthermore, the main effect of deadline was also significant, $B = -.274, p = .010$, implying that there were more people redeeming the coupons in the distant deadline condition than in the immediate deadline condition. No other

effects were significant. To further probe the interaction, I conducted the following analysis: if a participant redeemed the coupon, his or her probability of redeeming the coupon was 100%; otherwise, his or her probability of using the coupon was 0%. After subtracting the baseline probabilities of purchasing intent measured in the pretest, I found that in the presence of a distant deadline (throughout the day), the coupon redemption did not differ as a function of walking or sitting (Action: $M = 13\%$, $SD = 40\%$ vs. Inaction: $M = 7\%$, $SD = 47\%$), $F(1, 557) = 1.517$, $p = .219$. In contrast, in the presence of an immediate deadline (one hour), participants who were walking in the student union ($M = 11\%$, $SD = 38\%$) made more purchases than participants who were sitting in the union lounges ($M = -11\%$, $SD = 36\%$, $F(1, 557) = 20.637$, $p < .001$ (see Figure 3.1).

Figure 3.1. Means of difference between actual coupon redemption chance and baseline coupon redemption intention (Study 1).



NOTE.— Bars represent mean standard errors.

Study 1 thus confirmed my prediction in a natural setting. People with action goals (e.g., walking) redeemed coupons by an immediate deadline more often than did those with inaction goals (e.g., sitting). As discussed earlier, walking and sitting may stimulate a general action and inaction goal respectively. An immediate (vs. distant) deadline that requires prompt action is more demanding and thus is ideal for the recruitment of general action goals as a basis for a decision. As predicted, general action-inaction goals had no effect on the coupon redemption behavior when the deadline was distant, an effect that was replicated in the following experimental studies.

Study 2

In Study 2, I manipulated the general action and inaction goals by asking participants to walk or stand in the lab before indicating their purchase intentions concerning a flu shot offered on sale, with or without an immediate deadline. I also had a control group in which participants were not asked to walk or stand before indicating purchase intentions, although one can expect the control to have a general action goal to begin with (see Albarracín et al., 2008; Albarracín, Hepler, & Tannenbaum, 2011). Furthermore, I measured participants' attitudes toward the flu shot for control purposes. I predicted that, in the face of an immediate (vs. a distant) deadline, participants in the action goal condition (i.e., walking) would be more likely to purchase the flu shot than participants in the inaction goal condition (i.e., standing). The control condition might resemble the action goal condition since participants have just walked to the lab to participate in the study, but it was important to know what the baseline was.

Method

Participants and design. I employed a 3 General Action-Inaction Goals (Action vs. Inaction vs. Control) $\times$ 2 Deadline (Immediate vs. Distant) between-subjects design. Two

hundred and eighteen undergraduates (51% female; 72% native speakers of English; 48% Caucasian, 3% African American, 6% Hispanic, 41% Asian, 2% other ethnicity) participated in this experiment in exchange for course credit. Participants' ages ranged from 19 to 26 years ($M = 20.13$, $SD = 2.22$).

Procedure and measures. Participants arrived in the lab in small groups. After signing the consent forms, participants were told to clear their minds by imagining themselves in real shopping situations. To ostensibly help them in this task, participants were asked to either walk around (Action) or stand in a line (Inaction) in an open area of the lab for three minutes. After that, participants were directed to go back to their seats to complete questionnaires. Participants in the control condition were not asked to do such activities. In the questionnaires, participants were asked to consider what they would do if they received a coupon for a 50% discount on a flu shot at a nearby clinic. The health clinic would continue to be open either *for 5 minutes* (immediate deadline) or *for the day* (distant deadline), *at which point only customers already in the clinic would be able to receive the shot*. Participants were then asked to indicate their willingness to check out the flu shot sale (from 0 = *won't go at all* to 10 = *will definitely go*) and to purchase the vaccine (from 0 = *not at all likely* to 10 = *very likely*) using 11-point scales. The average of these two items was used as a measure of purchasing intention ($\alpha = .893$). After that, participants reported their attitudes about purchasing the flu shot by stating if they were *not interested in the flu shot* (reverse-scored), *liked the idea of the flu shot*, *getting the flu shot was a good idea*, and *getting the flu shot seemed beneficial* (from 0 = *not at all*, to 10 = *very much*; $\alpha = .869$). Participants' attitudes were not influenced by the general action-inaction goals and deadline manipulations (Action-immediate: $M = 5.58$, $SD = 2.59$; Inaction-immediate: $M = 4.08$,

$SD = 2.33$; Action-distant: $M = 5.07$, $SD = 2.72$; Inaction-distant: $M = 5.05$, $SD = 2.30$; Control-immediate: $M = 5.19$, $SD = 2.93$; Control-distant: $M = 5.16$, $SD = 2.39$), all $F_s < 1.8$.

Finally, as manipulation checks for physical feelings, participants reported the extent to which, during the walking/standing task, they felt they were *moving*, *static* (reverse-scored), *active*, and *passive* (reverse-scored) using 11-point scales (from 0 = *not at all*, to 10 = *very much*, $\alpha = .859$). Furthermore, to directly check the general action-inaction goals, participants were also asked to fill in seven items measuring their general action-inaction goal. Specifically, they were asked to indicate the extent to which they agree with these statements: (1) *During this study, I was feeling energetic*; (2) *If I could, I would take a nap after this session* (reverse-scored); (3) *If I could, I would go work out after this session*; (4) *During this study, I wanted to get some rest* (reverse-scored); (5) *Today I am motivated to get a lot of work done*; (6) *My goal for today is to relax as much as possible* (reverse-scored) on an 11-point scale (from 0 = *Not at all* to 10 = *Very much*, $\alpha = .685$). Additionally, they also reported the extent to which they felt they were *tired* and *bored* using 11-point scales (from 0 = *not at all*, to 10 = *very much*). These items were included to rule out possible influences of my manipulations on arousal level ($\alpha = .607$). Participants in the control condition were not asked to answer the questions since they did not complete the walking/standing task. Instead, they were asked to indicate their perception of the deadline as a way to check the manipulation success of the deadline. Specifically, they were asked to indicate the extent to which they perceived that *the deadline to purchase the flu shot was too tight/too loose, they had too little time/ample time, the deadline required acting right away/allowed ample time to act, the deadline was not likely feasible/likely feasible, and it was very hard to meet/very easy to meet*. Participants used 11-point scales (from 0 to 10) on which lower numbers indicated

feelings of more immediacy of the deadline (see all the manipulations and measures in Appendix G). The average of the items was used as a measure of deadline distance ($\alpha = .865$).

Results

Manipulation checks. As predicted, the general action-inaction goals manipulation significantly affected reports of physical feelings. Participants who walked reported more moving feelings ($M = 6.59, SD = 1.85$) than did participants who stood still ($M = 2.62, SD = 1.84$), $F(1, 143) = 171.283, p < .001$. More importantly, participants who walked had stronger action goals ($M = 5.29, SD = 1.59$) than did participants who stood still ($M = 4.71, SD = 1.86$), $F(1, 143) = 4.636, p = .033$. No other effects were significant, both F s < 1.7 . These results indicated that the general action-inaction goals were successfully primed.

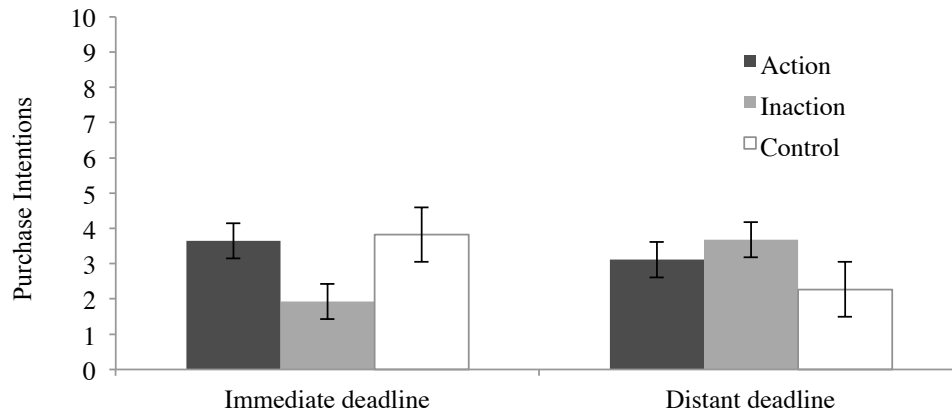
I also checked the effects of goal manipulations on arousal. I found that participants who stood still ($M = 7.51, SD = 1.86$) reported feeling more tired and more bored than did those who walked ($M = 5.36, SD = 2.11$), $F(1, 143) = 42.779, p < .001$. However, these responses were not correlated with purchase intentions, $p = .725$, and thus could not account for any results in the principal outcome variable. No other effects were significant, both F s < 1 .

With respect to the deadline manipulation, as expected, participants in the control group indicated that the five-minute deadline ($M = 3.07, SD = 2.42$) was tighter than the one-day deadline ($M = 4.92, SD = 1.70$), $F(1, 69) = 13.908, p < .001$, suggesting a successful manipulation of the deadline.

Effects on purchase intentions. As in Study 1, there was a significant two-way interaction between the general action-inaction goals and the deadline on behavioral intentions, $F(2, 212) = 6.835, p = .001, \eta^2 = .061$. The main effects of action and deadline were not significant, both F s < 1.0 . In the presence of an immediate deadline, participants in the general

action goals condition (i.e., walking, $M = 3.65$, $SD = 2.95$) were more likely to purchase the flu shot than were participants in the general inaction goals condition (i.e., standing, $M = 1.93$, $SD = 1.93$), $F(1, 212) = 7.05$, $p = .009$, but not more than those in the control condition, $F < 0.1$. Participants in the general inaction goals condition also had lower purchase intention than those in the control condition ($M = 3.82$, $SD = 3.31$), $F(1, 212) = 8.788$, $p = .003$. In contrast, in the presence of a distant deadline, the behavioral intentions of participants were not influenced by the manipulated general goals (action: $M = 3.11$, $SD = 2.59$; inaction: $M = 3.68$, $SD = 2.63$; control: $M = 2.27$, $SD = 2.77$), $F(2, 212) = 2.339$, $p = .128$ (see Figure 3.2).

Figure 3.2. Means of purchase intentions (Study 2).



NOTE.— Bars represent mean standard errors.

Discussion

Study 2 successfully replicated my previous findings using real movement manipulations in the lab. When the deadline of the offer was immediate, participants primed with the general action goals had stronger intentions to purchase the flu shot by the immediate deadline than did

participants primed with the general inaction goals. However, as predicted, when the deadline was distant, the general goals had no impact on the intention.

Study 3

Studies 1 and 2 provided evidence of the hypothesized effect of the general action-inaction goals and the deadline on behavior and intention to enact a recommended behavior. In my prior studies, the general action-inaction goals were gauged by the naturally occurring movements of walking and sitting or by a manipulation of gross movement. In Study 3, I aimed to manipulate the general action-inaction goals via imagined movement, because embodiment could be soft and activated by mental representation (Cohen & Leung, 2009; Leung & Cohen, 2007). Specifically, participants were asked to imagine and write about either running or standing, before indicating their purchase intention for a sale. I predicted the general action-inaction goals primed by imagined movement would be the same as for naturally occurring movement and manipulated real movement.

Method

Participants and design. I used a 2 General Action-Inaction Goals (Action vs. Inaction) × 2 Deadline (Immediate vs. Distant) between-subjects design. Two hundred and three Amazon Mechanical Turk workers residing in the United States (52% female; 97% native speakers of English; 77% Caucasian, 7% African American, 5% Hispanic, 9% Asian, 2% other ethnicity) participated in this experiment in exchange for a small monetary reward. Participants' ages ranged from 18 to 70 years ($M = 33.39$, $SD = 11.99$).

Procedure and measures. To manipulate the general action-inaction goals, participants were asked to imagine a situation in which they were either running or standing. They were asked to describe the situation and the physical experience in as much detail as possible.

Afterward, participants received the same flu-shot sale scenario as in Study 2, in which they were asked to consider what they would do if they received a coupon for a 50% discounted flu-shot at a nearby clinic. The health clinic would continue to be open either *for 5 minutes* (immediate deadline) or *for the day* (distant deadline). Participants indicated their purchase intentions concerning the flu shot sale ($\alpha = .972$), using the same measures as the previous study. For control purposes, participants also indicated their attitudes toward purchasing the flu shot with the same procedures as in Study 2 ($\alpha = .902$). Attitude was only affected by the general action-inaction goal ($F(1, 199) = 13.864, p < .001$), but not affected by either the deadline or the interaction term of general action-inaction goal and deadline, both $ps > .10$. Finally, participants completed the same manipulation checks of physical feelings ($\alpha = .855$), the self-reported general action-inaction goal ($\alpha = .690$), and the arousal checks ($\alpha = .557$) used in previous studies (see all the manipulations and measures in Appendix H).

Results

Manipulation checks. As in the previous study, the imagination task was associated with reported physical feelings. Participants who imagined running reported more moving feelings ($M = 6.30, SD = 2.53$) than did participants who imagined standing ($M = 3.24, SD = 2.14$), $F(1, 199) = 85.264, p < .001$. Furthermore, participants who imagined running also reported a stronger general action goal ($M = 6.23, SD = 1.78$) than did those participants who imagined standing ($M = 5.50, SD = 1.79$), $F(1, 199) = 8.509, p < .01$. No other effects were significant, both $Fs < 0.1$. These results indicated that imagined movement successfully primed the general action-inaction goals. As in Study 2, participants who imagined standing ($M = 3.98, SD = 2.87$) reported feeling more tired and bored than did those in the action condition ($M = 2.80, SD = 2.15$), $F(1, 199) = 11.212, p = .001$. As before, however, these items did not correlate with purchase intentions, p

= .309. No other effects on arousal were significant, both F s < 1, and thus will not be discussed further.

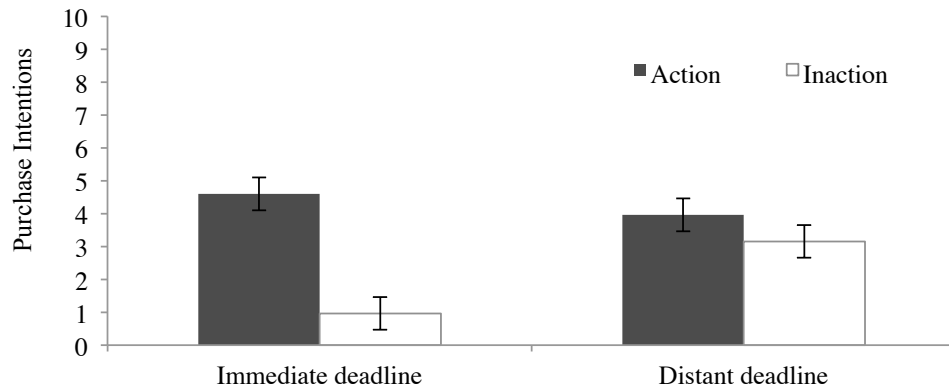
Effects on purchase intentions. I analyzed purchase intentions as a function of the general action-inaction goals, deadline, and their interaction term. As in the previous studies, there was a significant two-way interaction between the general action-inaction goals and the deadline, $F(1, 199) = 9.283, p = .003, \eta^2 = .045$. The main effect of the general action goal was significant, $F(1, 199) = 22.650, p < .001, \eta^2 = .102$, and the main effect of the deadline was marginally significant, $F(1, 199) = 2.788, p = .097, \eta^2 = .014$. In the presence of an immediate deadline, participants in the general action goal condition ($M = 4.60, SD = 3.83$) had stronger purchase intentions than those in the inaction goal condition ($M = 0.97, SD = 1.58$), $F(1, 199) = 29.930, p < .001$. In the presence of a distant deadline, however, behavioral intentions were unaffected by the general goal manipulation (action: $M = 3.96, SD = 3.75$; inaction: $M = 3.16, SD = 3.40$), $F(1, 199) = 1.493, n.s$ (See figure 3.3). Because attitude correlated with intention significantly, $r = .777, p < .001$, I thus ran a separate analysis with attitude as a covariate. After controlling for attitude, all of the effects remained the same.

Discussion

Study 3 replicated earlier findings with imagined movement. The results suggested that the general action-inaction goal might be primed through imagined movement. Supposedly, imagining movement brought up memories of being physically active in the past, while imagining standing brought up memories of being physically inactive, which then mobilized the general action and inaction goals, respectively. The general action (vs. inaction) goal in turn affected participants' purchase intention by the immediate deadline. However, in the absence of

an immediate deadline, the general action and inaction goals became irrelevant and thus was not applied to the situation.

Figure 3.3. Means of purchase intentions (Study 3).



NOTE.— Bars represent mean standard errors.

Study 4

In Study 4, I measured the proposed mechanism—perceived fit—as well as deadline relevance. I used imagined movement as the way to manipulate the general action-inaction goals.

Method

Participants and design. I used a 3 General Action-Inaction Goals (Action vs. Inaction vs. Control) $\times$ 2 Deadline (Immediate vs. Distant) between-subjects design. Two hundred and eighty-nine undergraduates (59% female; 60% native speakers of English; 39% Caucasian, 5% African American, 5% Hispanic, 50% Asian, 2% other ethnicity) participated in this experiment in exchange for course credits. Participants' ages ranged from 18 to 32 years ($M = 20.18$, $SD = 1.40$).

Procedure and measures. Participants were randomly assigned to imagine moving or standing, using the same mental-imagining task as in Study 3. After the imagination task, participants read the same flu-shot sale scenario as the previous studies. The immediate deadline was *5 minutes* and the distant deadline was *throughout the day*. The participants indicated their purchase intentions concerning the flu shot sale on two items ($\alpha = .917$). After that, participants were asked to indicate the extent to which they perceived fit on two items: (1) *I felt like attending the flu shot sale would just flow from how I was feeling*; (2) *Attending the flu shot sale just felt natural* ($\alpha = .788$). Furthermore, participants also indicated the relevance of the deadline on two items: (1) *The deadline of the flu shot sale was relevant to my decision to get the shot*; (2) *I paid a lot of attention to the deadline* ($\alpha = .756$). In addition, participants also reported their attitudes toward getting the flu shot ($\alpha = .872$) on three items: (1) *I liked the idea of the flu shot*; (2) *Getting the flu shot was a good idea*; (3) *Getting the flu shot seemed beneficial* ($\alpha = .872$). Finally, except for participants in the control condition, participants completed the same manipulation checks of physical feelings ($\alpha = .704$) used in previous studies, and the arousal check about the extent to which they felt they were *tired*, *bored*, *jittery*, and *anxious* using 11-point scales (from 0 = not at all, to 10 = very much, $\alpha = .529$). All of the participants also completed the manipulation checks of the general action-inaction goal ($\alpha = .606$) and the deadline perception ($\alpha = .733$) as in Study 2 (see all the manipulations and measures in Appendix I).

Results

Manipulation checks. As in the previous study, the imagination task produced the expected physical feelings. Participants who imagined running reported more moving feelings ($M = 5.10$, $SD = 2.00$) than did those participants who imagined standing ($M = 3.92$, $SD = 1.89$),

$F(1, 189) = 17.803, p < .001$. Furthermore, participants in the general action goal condition ($M = 4.55, SD = 1.57$) indicated that they had a higher general action goal than those in the general inaction goal condition ($M = 4.08, SD = 1.75$), $F(1, 283) = 3.879, p = .049$. Participants in the control condition ($M = 4.65, SD = 1.61$) also had a higher general action goal than those in the general inaction condition, $F(1, 283) = 5.710, p = .018$, but did not differ from those in the general action condition, $F < 0.2$. These results suggested that the general action-inaction goal manipulation was successful and participants in the control condition had a similar level of action goals as those in the general action goal condition. In addition, participants who received an immediate deadline perceived themselves to have less time ($M = 3.35, SD = 2.09$) than did those who received a distant deadline ($M = 4.91, SD = 1.43$), $F(1, 283) = 54.368, p < .001$. Finally, there were no differences for participants in any arousal measures across the action and inaction conditions, all $F_s < 1.1$, and thus will not be discussed further.

Effects on purchase intentions. I analyzed purchase intentions as a function of action and deadline. As in the previous studies, there was a significant two-way interaction between the general action-inaction goal condition and deadline on intentions, $F(2, 283) = 4.126, p = .017$, $\eta^2 = .028$. Neither the main effect of action condition nor the main effect of deadline were significant, $p_s > .16$. A simple contrast analysis was performed to probe the interaction. In the presence of an immediate deadline, participants in the general inaction goal condition ($M = 2.50, SD = 2.73$) had weaker purchase intentions than those participants in the general action goal condition ($M = 4.00, SD = 3.03$), $F(1, 283) = 6.925, p = .009$, as well as those participants in control conditions ($M = 4.09, SD = 2.70$), $F(1, 283) = 7.737, p = .006$. In this immediate-deadline condition, the purchase intentions in the general action goal and control conditions did not differ, $F < 0.5$. In the presence of a distant deadline, however, behavioral intentions were

unaffected by the general action-inaction goal conditions (Action: $M = 2.79$, $SD = 2.69$; Inaction: $M = 3.55$, $SD = 2.79$; Control: $M = 3.51$, $SD = 2.95$), $F(1, 283) = 1.151$, *n.s.* Again, attitude was not influenced by the manipulations, all $ps > .14$, but correlated with intention ($r = .719$, $p < .001$). However, results remained the same after controlling for attitude.

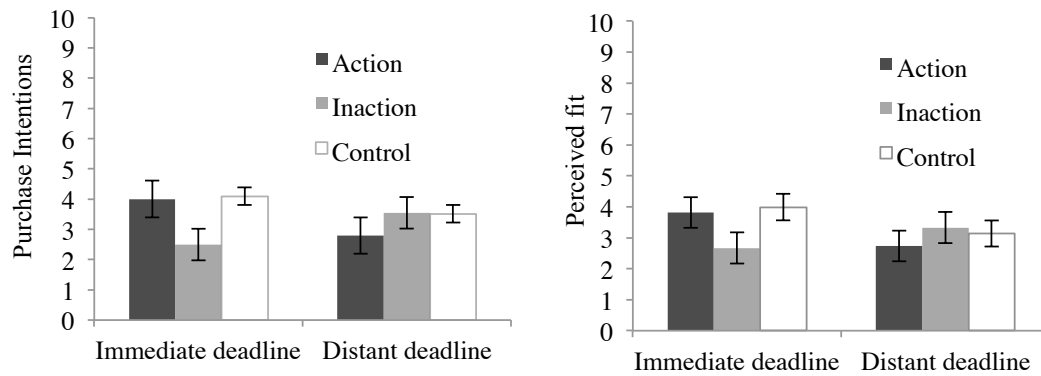
Effects on deadline relevance. I found that participants perceived the deadline to be more relevant to their decision when the deadline was immediate ($M = 4.21$, $SD = 2.70$) than when it was distant ($M = 2.91$, $SD = 2.63$), $F(1, 283) = 17.036$, $p < .001$. No other effects were significant, $F_s < 1.0$.

Effects on perceived fit. I found a significant two-way interaction between the general action-inaction goal and the deadline on perceived fit, $F(2, 283) = 3.725$, $p = .025$, $\eta^2 = .026$. When there was an immediate deadline, participants in the general inaction goal condition ($M = 2.67$, $SD = 2.38$) felt less fit than did participants in the general action goal condition ($M = 3.82$, $SD = 2.28$), $F(1, 283) = 5.573$, $p = .019$, and those in the control condition ($M = 3.99$, $SD = 2.48$), $F(1, 283) = 7.315$, $p = .007$. When there was a distant deadline, however, perceived fit was unrelated to the general action-inaction goal conditions (action: $M = 2.74$, $SD = 2.56$; inaction: $M = 3.33$, $SD = 2.54$; control: $M = 3.14$, $SD = 2.11$), $F(2, 283) = 0.750$, *n.s.* (See Figure 3.4).

Mediated moderation analysis. I used a bootstrap analysis with 5,000 samples (Model 8, Preacher, Rucker, & Hayes, 2007) to test the mediated-moderation model with perceived fit as the mediator. Results showed that the interaction of the general action-inaction goal and the deadline on purchase intentions was significantly mediated by perceived fit, *effect size* = 0.6891, $SE_{(Boot)} = 0.2822$, 95% *CI* (0.1353, 1.2330). Furthermore, when there was an immediate deadline,

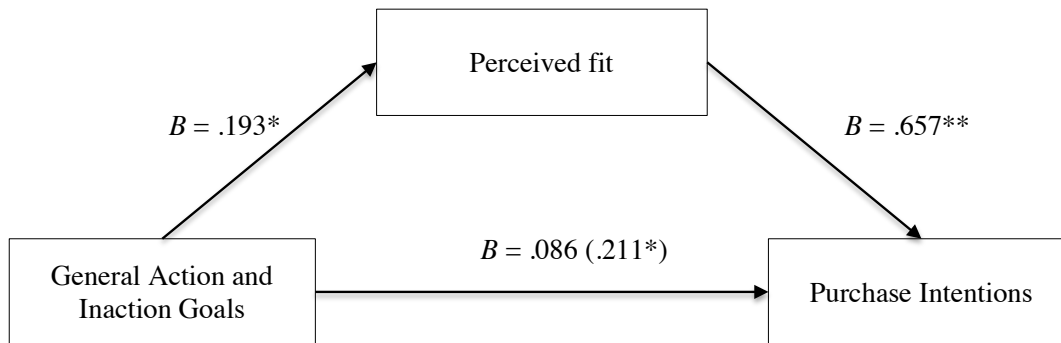
perceived fit mediated the effect of action on intention, *effect size* = 0.4542, $SE_{(Boot)} = 0.1844$, 95% *CI* (0.0828, 0.8323). The mediation model appears in Figure 3.5.

Figure 3.4. Means of purchase intentions and perceived fit (Study 4).



NOTE.— Bars represent mean standard errors.

Figure 3.5. Mediation model in the presence of the immediate deadline (Study 4).



NOTE.— All of the β_s are standardized; the beta in the bracket denotes the direct effect of the general action and inaction goals (1 = action, 0 = control; -1 = inaction) on purchase intentions before mediation; * $p < .05$, ** $p < .01$.

Discussion

As in previous studies, with the presence of an immediate deadline, participants in the general action goal condition were more likely to purchase the flu shot than were participants in the general inaction goal conditions. Participants in the control condition reported having similarly high general action goals as those in the general action goal condition: thus, their purchase intention was influenced by the deadline in a similar way to those in the general action goal condition. This finding may be due in part to participants usually walking to the lab, and thus possessing similar levels of action goals relative to the action primed ones. Furthermore, the mechanism measures of Study 4 supported my proposed mechanism that perceived fit mediated the combined effect of the general action-inaction goal and deadline on purchase intentions. Participants in the general action goal condition perceived more fit with the immediate action cue (i.e., immediate deadline) and thus had higher purchase intentions than those in the general inaction goal condition. The results also suggested that the deadline became more relevant to the behavioral decision when it was immediate rather than when it was distant.

General Discussion

Across four experiments (see summary in Table 3.1), I investigated the effect of general goals and deadlines on behavioral intentions. I found that when the deadline of an offer was immediate, people primed with action goals had stronger purchase intentions than those primed with inaction goals, regardless of the type of product or service being considered. However, when the deadline was distant and thus less demanding, the general goals were uninfluential. I manipulated the general goals by either measuring naturally occurring physical behaviors or having participants enact or recall physical behaviors across various consumption situations. Study 1 showed that walking participants were more likely to redeem coupons with an

immediate (vs. distant) deadline than those who were seated. Study 2 included a manipulation of general goals by asking participants to walk or stand in the lab, thus avoiding any confounding effects of naturally occurring movement. Study 3 included a manipulation of general goals by having participants imagine running or standing, and replicated the earlier effects. Finally, Study 4 found support for the proposed fit mechanism underlying the effect.

Table 3.1. Main results of all studies in chapter 3.

		Deadline	
Study 1: Coupon redemption in the field		Immediate <i>M (SD)</i>	Distant <i>M (SD)</i>
Coupon redemption rate	Action	11% ^a (38%)	13% ^a (40%)
	Inaction	-11% ^b (36%)	7% ^a (47%)
Study 2: Real movement & flu shot		Immediate <i>M (SD)</i>	Distant <i>M (SD)</i>
Purchase intentions	Action	3.65 ^a (2.95)	3.11 ^a (2.59)
	Inaction	1.93 ^b (1.93)	3.68 ^a (2.63)
	Control	3.82 ^a (3.31)	2.27 ^a (2.77)
Study 3: Imagined movement & flu shot		Immediate <i>M (SD)</i>	Distant <i>M (SD)</i>
Purchase intentions	Action	4.60 ^a (3.83)	3.96 ^a (3.75)
	Inaction	0.97 ^b (1.58)	3.16 ^a (3.40)
Study 4: Imagined movement with control		Immediate <i>M (SD)</i>	Distant <i>M (SD)</i>
Purchase intentions	Action	4.00 ^a (3.03)	2.79 ^a (2.69)
	Inaction	2.50 ^b (2.73)	3.55 ^a (2.79)
	Control	4.09 ^a (2.70)	3.51 ^a (2.95)
Perceived fit*	Action	3.82 ^a (2.28)	2.74 ^a (2.56)
	Inaction	2.67 ^b (2.38)	3.33 ^a (2.54)
	Control	3.99 ^a (2.48)	3.14 ^a (2.11)

NOTE.—Cells with different superscripts in a column differ at $p < .05$. *Higher number means more fit.

This research provides a new perspective on how the general action and inaction goals of consumers can exert a surprising and influential impact on future consumer behaviors and intentions. Past research has suggested that general action-inaction concepts and goals influence

specific behaviors in a variety of contexts (e.g., Albarracín et al., 2008; Gendolla & Silvestrini, 2010; Laran, 2010). As an example, people who were incidentally exposed to action-related words, such as *active* and *go* preferred drawing over sleeping, exercised for a longer time, ate more, and solved more anagrams than did those in conditions where they were exposed to inaction-related words, such as *sleep* and *stop* (Albarracín et al., 2008). The present research contributes to this past literature not only by highlighting important consumer consequences, but also by identifying temporal urgency as a factor that prompts the use of general action and inaction goals in a particular behavioral situation.

My studies revealed that deadlines are more effective for increasing compliance with a recommendation when people engage in or imagine active behaviors, such as walking and running, but not when they engage in or imagine inactive behaviors, such as sitting and standing. In prior studies on deadlines (e.g., Brannon & Brock, 2001a), participants were actually moving or engaged in a neutral state before receiving the deadline. Participants in Brannon and Brock (2001a) were driving through a local Mexican fast-food restaurant when they were asked to buy Cinnamon Twists as part of a limited-time offer. In other research showing beneficial effects of deadlines on compliance, participants likely had spontaneous general action goals (e.g., Aggarwal et al., 2011; Janakiraman & Ordóñez, 2012; Ramanathan & Dhar, 2010; Vermeir & Van Kenhove, 2005). Contrary to past research on the effects of deadlines, my studies suggest that deadlines can decrease compliance with a recommendation when people engage in or imagine inactive behaviors. This finding may be useful to marketers if they target relatively inactive consumers such as those who frequently sit in front of a TV or a computer. In these cases, marketers are probably better off using distant deadlines rather than immediate deadlines in their marketing communications.

In line with previous research on embodiment, my studies found that consumers' enacted or imagined physical behaviors influence the effectiveness of limited-time strategies to a great extent by activating distinct general goals. However, departing from previous research focused on establishing the connection between bodily experience and cognitions (e.g., concepts, feelings, and metaphors; Krishna & Schwarz, 2014), my research furthers the literature by investigating how the embodiment of action and inaction can inform people of their *general* motivational states.

In closing, physical behaviors surrounding decisions may be objectively irrelevant, but this irrelevance does not make them inconsequential. My research provides evidence of the combined effects of deadlines and general action-inaction goals on decision making in ways not easily anticipated by prior scholarship. Active and inactive physical behaviors can stimulate general goals, but these goals matter only when people are pressed by time.

CHAPTER 4

CONCLUSION

Across two series of studies, I investigated how active and inactive behaviors affect present or subsequent behaviors, intentions and performance. The first series of studies (Essay 1) investigated the situational conditions that lead to active and inactive behaviors in the decision making process, and showed that people are more likely to accept the default option when they engage in passive decision making, but are more likely to ignore or question the default option when they engage in active decision making. The second series of studies (Essay 2) examined the goals elicited by active and inactive behaviors, and suggested that general action goals increase immediate intentions and actions by altering the perceived motivational fit with the deadline.

Essay 1 has implications for the literature on choice structure. Although a default option has often been found to increase behavioral compliance, the power of this nudge actually depends on the underlying assumption that people are passive in making decisions. I found that the passive decision making process is likely to be triggered by short decision time, a time delay, and lack of motivation to make the decision. These results have implications for policy making regarding when to employ the default option. For example, the default option may be better employed when people make decisions quickly, make decisions after a time delay, or when they are less motivated to make the decisions. If people have sufficient ability and motivation to make decisions, it may be better to use a control choice format instead of a default option format.

Essay 2 has implications for marketing promotion. Despite the ubiquity of the limited-time strategy in marketing, prior theorizing is silent on the likely effects of consumers' actions while they are making decisions about the limited-time offers. In Essay 2, I found that physical

activity levels of consumers can have a surprising and powerful impact on their consumer decisions, because the general action (vs. inaction) goals triggered by active (vs. inactive) behaviors increase the perceived motivational fit with the limited time. This research makes several contributions. First, it demonstrates that general action and inaction goals have important consequences with regard to consumer behaviors and decisions. Second, it implements enacted and recalled physical activities as a new way to prime general action-inaction goals. Third, by showing that the presence of an immediate deadline enables the effects of general action and inaction goals in consumer decision making, I connect otherwise separate lines of research on time-limited strategies and general action-inaction goals.

In closing, these two essays contribute to our understanding of how behaviors of varying activity levels affect present and subsequent decisions, intentions, and performance in consumer and social contexts.

REFERENCES

- Aggarwal, P., Jun, S. Y., & Huh, J. H. (2011). Scarcity messages. *Journal of Advertising*, 40, 19-30. doi:10.2753/JOA0091-3367400302
- Albarracín, D., & Handley, I. M. (2011). The time for doing is not the time for change: Effects of general action and inaction goals on attitude retrieval and attitude change. *Journal of Personality and Social Psychology*, 100, 983-998. doi:10.1037/a0023245
- Albarracín, D., & Wyer, R. S. (2000). The cognitive impact of past behavior: Influences on beliefs, attitudes, and future behavioral decisions. *Journal of Personality and Social Psychology*, 79, 5-22. doi:10.1037/0022-3514.79.1.5
- Albarracín, D., Handley, I. M., Noguchi, K., McCulloch, K. C., Li, H., Leeper, J., Brown, R. D., Earl, A., & Hart, W. (2008). Increasing and decreasing motor and cognitive output: A model of general action and inaction goals. *Journal of Personality and Social Psychology*, 95, 510-523. doi:10.1037/a0012833
- Albarracín, D., Hepler, J., & Tannenbaum, M. (2011). General action and inaction goals: Their behavioral, cognitive, and affective origins and influences. *Current Directions in Psychological Science*, 20, 119-123. doi:10.1177/0963721411402666
- Albarracín, D., Johnson, B. T., Fishbein, M., & Muellerleile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: A meta-analysis. *Psychological Bulletin*, 127, 142-161. doi:10.1037/0033-2909.127.1.142
- Albarracín, D., Wang, W., & Leeper, J. (2009). Immediate increase in food intake following exercise messages. *Obesity*, 17, 1451-1452. doi:10.1038/oby.2009.16
- Anderson, J. R. (1982). Acquisition of cognitive skill. *Psychological Review*, 89, 369-406. doi:10.1037/0033-295X.89.4.369

- Anderson, J. R. (1983). *The architecture of cognition*. Cambridge, MA: Harvard University Press.
- Araña, J. E., León, C. J., Moreno-Gil, S., & Zubiaurre, A. R. (2013). A comparison of tourists' valuation of climate change policy using different pricing frames. *Journal of Travel Research*, 52(1), 82-92. doi:10.1177/0047287512457260
- Ariely, D., & Wertenbroch, K. (2002). Procrastination, deadlines, and performance: Self-control by precommitment. *Psychological Science*, 13, 219-224. doi:10.1111/1467-9280.00441
- Ariely, D., & Zakay, D. (2001). A timely account of the role of duration in decision making. *Acta Psychologica*, 108(2), 187-207. doi:10.1016/S0001-6918(01)00034-8
- Ariely, D., Bracha, A., & Meier, S. (2009). Doing good or doing well? Image motivation and monetary incentives in behaving prosocially. *The American Economic Review*, 99(1), 544–555. doi:10.1257/aer.99.1.544
- Ariely, D., Ockenfels, A., & Roth, A. E. (2005). An experimental analysis of ending rules in internet auctions. *RAND Journal of Economics*, 890-907. doi:10.2139/ssrn.429963
- Atkinson, J. W. (1958). Motives in fantasy, action, and society: A method of assessment and study. In Atkinson, J. W. (Ed.), *Van Nostrand Motives in fantasy, action, and society: A method of assessment and study*. Oxford, England: Van Nostrand.
- Avnet, T., & Higgins, E. T. (2006). How regulatory fit affects value in consumer choices and opinions. *Journal of Marketing Research*, 43(1), 1-10.
- Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Trötschel, R. (2001). The automated will: Nonconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology*, 81, 1014-1027.
- Brandimonte, M. A., Einstein, G. O., & McDaniel, M. A. (2014). *Prospective memory: Theory and applications*. New York, NY: Psychology Press.

- Brannon, L. A., & Brock, T. C. (2001a). Limiting time for responding enhances behavior corresponding to the merits of compliance appeals: Refutations of heuristic-cue theory in service and consumer settings. *Journal of Consumer Psychology, 10*, 135-146.
doi:10.1207/s15327663jcp1003_2
- Brannon, L. A., & Brock, T. C. (2001b). Scarcity claims elicit extreme responding to persuasive messages: Role of cognitive elaboration. *Personality and Social Psychology Bulletin, 27*, 365-375. doi:10.1177/0146167201273010
- Brehm, J. W., & Self, E. A. (1989). The intensity of motivation. *Annual Review of Psychology, 40*, 109-131.
- Brock, T. C., & Mazzocco, P. J. (2004). Responses to scarcity: A commodity theory perspective on reactance and rumination. In R. A. Wright, J. Greenberg, & S. S. Brehm (Eds.), *Motivational analyses of social behavior: Building on Jack Brehm's contributions to psychology* (pp. 129-148). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Brown, C. L. & Krishna, A. (2004). The skeptical shopper: A metacognitive account for the effects of default options on choice. *Journal of Consumer Research, 31*, 529-539.
doi:10.1086/425087
- Cacioppo, J. T., Priester, J. R., & Berntson, G. G. (1993). Rudimentary determinants of attitudes: II. Arm flexion and extension have differential effects on attitudes. *Journal of Personality and Social Psychology, 65*, 5-17. doi:10.1037/0022-3514.65.1.5
- Centerbar, D. B., & Clore, G. L. (2006). Do approach-avoidance actions create attitudes? *Psychological Science, 17*, 22-29. doi:10.1111/j.1467-9280.2005.01660.x
- Cesario, J., Grant, H., & Higgins, E. T. (2004). Regulatory fit and persuasion: Transfer from "feeling right." *Journal of Personality and Social Psychology, 86*(3), 388-404.

- Chandran, S., & Morwitz V. G. (2005). Effects of participative pricing on consumers' cognitions and actions: A goal theoretic perspective. *Journal of Consumer Research*, 32, 249-259. doi:10.1086/432234
- Cialdini, R. B. (2001). *Influence: Science and practice* (4th edition). Boston, MA: Allyn and Bacon.
- Cohen, D., & Leung, A. K. Y. (2009). The hard embodiment of culture. *European Journal of Social Psychology*, 39(7), 1278-1289. doi:10.1002/ejsp.671
- Darley, W. K., & Smith, R. E. (1993). Advertising claim objectivity: Antecedents and effects. *Journal of Marketing*, 57, 100-113.
- Dhar, R., & Nowlis, S. M. (1999). The effect of time pressure on consumer choice deferral. *Journal of Consumer Research*, 25(4), 369-384. doi:10.1086/209545
- Dhar, R., Huber, J., & Khan, U. (2007). The shopping momentum effect. *Journal of Marketing Research*, 44, 370-378. doi:10.1509/jmkr.44.3.370
- Di Guida, S., Marchiori, D., & Erev, I. (2012). Decisions among defaults and the effect of the option to do nothing. *Economics Letters*, 117(3), 790-793.
doi:10.1016/j.econlet.2012.08.018
- Dinner, I., Johnson, E. J., Goldstein, D. G., & Liu, K. (2011). Partitioning default effects: Why people choose not to choose. *Journal of Experimental Psychology: Applied*, 17(4), 332.
doi:10.1037/a0024354
- Einstein, G. O., & McDaniel, M. A. (1990). Normal aging and prospective memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 16(4), 717.
doi:10.1037/0278-7393.16.4.717

- Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology*, 72(1), 218-232.
- Fishbach, A., Shah, J. Y., & Kruglanski, A. W. (2004). Emotional transfer in goal systems. *Journal of Experimental Social Psychology*, 40, 723-738. doi:10.1016/j.jesp.2004.04.001
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Readings, MA: Addison-Wesley.
- Fiske, S. T., & Taylor, S. E. (1991). *Social cognition*, 2nd. New York, NY: McGraw-Hill.
- Galinsky, A. D., Gruenfeld, D. H., & Magee, J. C. (2003). From power to action. *Journal of Personality and Social Psychology*, 85, 453-466. doi:10.1037/0022-3514.85.3.453
- Gendolla, G. H. (1999). Self-relevance of performance, task difficulty, and task engagement assessed as cardiovascular response. *Motivation and Emotion*, 23(1), 45-66.
- Gendolla, G. H., & Silvestrini, N. (2010). The implicit “go” masked action cues directly mobilize mental effort. *Psychological Science*, 21, 1389-1393.
doi:10.1177/0956797610384149
- Giving USA (2015). Giving USA 2015-Highlights. Retrieved from
<http://www.givinginstitute.org/?page=GUSAAnnualReport>
- Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, 54, 493-503. doi:10.1037/0003-066X.54.7.493
- Haggag, K., & Paci, G. (2014). Default tips. *American Economic Journal: Applied Economics*, 6(3), 1-19. doi:10.1257/app.6.3.1
- Hartman, R. S., Doane, M. J., & Woo, C-K. (1991). Consumer rationality and the status quo. *The Quarterly Journal of Economics*, 106, 141-162. doi:10.2307/2937910

- Hepler, J., Wang, W., & Albarracín, D. (2011). Motivating exercise: The interactive effect of general action goals and past behavior on physical activity. *Motivation and Emotion*, 42, 365-370. doi:10.1007/s11031-011-9267-0
- Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist*, 52(12), 1280-1300.
- Hung, I. & Labroo, A. (2011). From firm muscles to firm willpower: Understanding the role of embodied cognition in self-regulation. *Journal of Consumer Research*. 37(6), 1046-1064. doi:10.1086/657240
- Inman, J. J., Peter, A. C., & Raghurir, P. (1997). Framing the deal: The role of restrictions in accentuating deal value. *Journal of Consumer Research*, 24, 68-79. doi:10.1086/209494
- Janakiraman, N., & Ordóñez, L. (2012). Effect of effort and deadlines on consumer product returns. *Journal of Consumer Psychology*, 22, 260-271. doi:10.1016/j.jcps.2011.05.002
- Johnson, E. J., & Goldstein, D. G. (2003). Do defaults save lives? *Science*, 302, 1338-1339. doi:10.1126/science.1091721
- Johnson, E. J., Bellman, S., & Lohse, G. L. (2002). Defaults, framing and privacy: Why opting in-opting out. *Marketing Letters*, 13, 5-15. doi:10.1023/A:1015044207315
- Johnson, E.J., Hershey, J., Meszaros, J., & Kunreuther, H. (1993). Framing, probability distortions, and insurance decisions. *Journal of Risk and Uncertainty*, 7, 35-53. doi:10.1007/BF01065313
- Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *The Journal of Economic Perspectives*, 5(1), 193-206. doi:10.1257/jep.5.1.193
- Kang, Y. S., & Herr, P. M. (2006). Beauty and the beholder: Toward an integrative model of communication source effects. *Journal of Consumer Research*, 33(1), 123-130.

- Keller, P. A., Harlam, B., Loewenstein, G., & Volpp, K. G. (2011). Enhanced active choice: A new method to motivate behavior change. *Journal of Consumer Psychology*, 21(4), 376-383. doi:10.1016/j.jcps.2011.06.003
- Kopp, C. B. (1982). Antecedents of self-regulation: A developmental perspective. *Developmental Psychology*, 18(2), 199-214.
- Krishna, A. & Schwarz, N. (2014) Sensory marketing, embodiment, and grounded cognition: A review and introduction. *Journal of Consumer Psychology*, 24, 159-168. doi:10.1016/j.jcps.2013.12.006.
- Kruglanski, A. W., Shah, J. Y., Fishbach, A., Friedman, R., Chun, W. Y., & Sleeth-Keppler, D. (2002). A theory of goal systems. *Advances in Experimental Social Psychology*, 34, 331-378.
- Laran, J. (2010). The influence of information processing goal pursuit on postdecision affect and behavioral intentions. *Journal of Personality and Social Psychology*, 98, 16-28. doi:10.1037/a0017422
- Lee, A. Y., & Aaker, J. L. (2004). Bringing the frame into focus: The influence of regulatory fit on processing fluency and persuasion. *Journal of Personality and Social Psychology*, 86(2), 205-218.
- Lee, S. W. S., & Schwarz, N. (2010). Dirty hands and dirty mouths: Embodiment of the moral-purity metaphor is specific to the motor modality involved in moral transgression. *Psychological Science*, 21(10), 1423-1425. doi:10.1177/0956797610382788
- Leung, A. K. Y., & Cohen, D. (2007). The soft embodiment of culture camera angles and motion through time and space. *Psychological Science*, 18(9), 824-830.

- Levav, J., Heitmann, M., Herrmann A., & Iyengar, S. (2010). Order in product customization decisions: Evidence from field experiments. *Journal of Political Economy*, 118, 274-299. doi:10.1086/652463
- Lynn, M. (1991). Scarcity effects on value: A quantitative review of the commodity theory literature. *Psychology and Marketing*, 8, 43-57. doi:10.1002/mar.4220080105
- Macan, T., Gibson, J. M., & Cunningham, J. (2010). Will you remember to read this article later when you have time? The relationship between prospective memory and time management. *Personality and Individual Differences*, 48(6), 725-730. doi:10.1016/j.paid.2010.01.015
- Madrian, B. C., & Shea, D. F. (2001). The power of suggestion: Inertia in 401 (k) participation and savings behavior. *Quarterly Journal of Economics*, 116, 1149-1187. doi:10.1162/003355301753265543
- McKenzie, C. R., Liersch, M. J., & Finkelstein, S. R. (2006). Recommendations implicit in policy defaults. *Psychological Science*, 17, 414-420. doi:10.1111/j.1467-9280.2006.01721.x
- Meier, S. (2007). A survey on Economic theories and field evidence on pro-social behavior. In Bruno S. Frey & Alois Stutzer (Eds.) *Economics and psychology: A promising new cross-disciplinary field* (pp. 51-88). Cambridge, MA: MIT Press.
- Miller, J. C., & Krizan, Z. (2016). Walking facilitates positive affect (even when expecting the opposite). *Emotion*, 16(5), 775-785. doi:10.1037/a0040270
- Noguchi, K., Handley, I. M., & Albarracín, D. (2011). Participating in politics resembles physical activity: General action patterns in international archives, United States archives, and experiments. *Psychological Science*, 22, 235-242. doi:10.1177/0956797610393746
- Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. *Advances in Experimental Social Psychology*, 19, 123-205. doi:10.1016/S0065-2601(08)60214-2

- Petty, R. E., Cacioppo, J. T., & Schumann, D. (1983). Central and peripheral routes to advertising effectiveness: The moderating role of involvement. *Journal of Consumer Research*, 10, 135-146.
- Petty, R. E., Haugtvedt, C. P., & Smith, S. M. (1995). Elaboration as a determinant of attitude strength: Creating attitudes that are persistent, resistant, and predictive of behavior. *Attitude Strength: Antecedents and consequences*, 4, 93-130.
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42, 185-227. doi:10.1080/00273170701341316
- Ramanathan, S., & Dhar, S. K. (2010). The effect of sales promotions on the size and composition of the shopping basket: Regulatory compatibility from framing and temporal restrictions. *Journal of Marketing Research*, 47, 542-552. doi:10.1509/jmkr.47.3.542
- Reiter, P. L., McRee, A. L., Pepper, J. K., & Brewer, N. T. (2012). Default policies and parents' consent for school-located HPV vaccination. *Journal of Behavioral Medicine*, 35(6), 651-657. doi:10.1007/s10865-012-9397-1
- Roth, A. E., & Ockenfels, A. (2002). Last minute bidding and the rules for ending second price auctions: Evidence from Ebay and Amazon auctions on the internet. *American Economic Review*, 92, 1093-1103. doi:10.1257/00028280260344632
- Shavitt, S., Swan, S., Lowrey, T. M., & Wänke, M. (1994). The interaction of endorser attractiveness and involvement in persuasion depends on the goal that guides message processing. *Journal of Consumer Psychology*, 3(2), 137-162.

- Shepherd, L., & O'Carroll, R. E. (2013). Awareness of legislation moderates the effect of opt-out consent on organ donation intentions. *Transplantation*, 95(8), 1058-1063.
doi:10.1097/TP.0b013e318284c13f
- Shevchenko, Y., Helversen, B. Von, & Scheibehenne, B. (2014). Change and status quo in decisions with defaults: The effect of incidental emotions depends on the type of default. *Judgment and Decision Making*, 9(3), 287-296.
- Shu, S. B., & Gneezy, A. (2010). Procrastination of enjoyable experiences. *Journal of Marketing Research*, 47, 933-944. doi:10.1509/jmkr.47.5.933
- Silvestrini, N., & Gendolla, G. H. E. (2013). Automatic effort mobilization and the principle of resource conservation: One can only prime the possible and justified. *Journal of Personality and Social Psychology*, 104(5), 803-816. doi:10.1037/a0031995
- Smith, E. R. (1994). Procedural knowledge and processing strategies in social cognition. In R. S. Wyer & T. K. Srull (eds.), *Handbook of social cognition* (2nd ed., pp. 101-151). Hillsdale, NJ: Erlbaum.
- Smith, G. C., & Oyserman, D. (2015). Just not worth my time? Experienced difficulty and time investment. *Social Cognition*, 33(2), 85-103.
- Smith, R. E. (2003). The cost of remembering to remember in event-based prospective memory: Investigating the capacity demands of delayed intention performance. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 29(3), 347-361.
doi:10.1037/0278-7393.29.3.347
- Voracek, M., & Sonleitner, C. (2015). Replication of D Albarracín, IM Handley, K Noguchi, KC McCulloch, H Li, J Leeper, RD Brown, A Earl, WP Hart (2008, JPSP 95(3), Exp. 7).
doi:10.17605/OSF.IO/CTVEJ

- Spiller, S. A., Fitzsimons, G. J., Lynch Jr, J. G., & McClelland, G. H. (2013). Spotlights, floodlights, and the magic number zero: Simple effects tests in moderated regression. *Journal of Marketing Research*, 50(2), 277-288. doi:10.1509/jmr.12.0420
- Suri, R., & Monroe, K. B. (2003). The effects of time constraints on consumers' judgments of prices and products. *Journal of Consumer Research*, 30(1), 92-104. doi:10.1086/374696
- Thaler, R. H., Sunstein, C. R., & Balz, J. P. (2012). Choice architecture. In Eldar Shafir (Ed.), *The Behavioral Foundations of Public Policy* (pp. 428-439). Princeton University Press. doi:10.13140/2.1.4195.2321
- Thaler, R., & Sunstein, C. (2008). *Nudge: The gentle power of choice architecture*. New Haven, Conn.:Yale.
- Thelen, E. (1995). Motor development: A new synthesis. *American Psychologist*, 50(2), 79-95.
- Topolinski, S., Maschmann, I. T., Pecher, D., & Winkielman, P. (2014). Oral approach-avoidance: Affective consequences of muscular articulation dynamics. *Journal of Personality and Social Psychology*, 106(6), 885-896. doi:10.1037/a0036477
- Tormala, Z. L., & Petty, R. E. (2004). Resistance to persuasion and attitude certainty: The moderating role of elaboration. *Personality and Social Psychology Bulletin*, 30, 1446-1457. doi:10.1177/0146167204264251
- Tversky, A., & Shafir, E. (1992). Choice under conflict: The dynamics of deferred decision. *Psychological Science*, 3, 358-361. doi:10.1111/j.1467-9280.1992.tb00047.x
- Vermeir, I., & Van Kenhove, P. (2005). The influence of need for closure and perceived time pressure on search effort for price and promotional information in a grocery shopping context. *Psychology and Marketing*, 22, 71-95. doi:10.1002/mar.20047

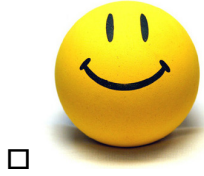
- Weenig, M. W., & Maarleveld, M. (2002). The impact of time constraint on information search strategies in complex choice tasks. *Journal of Economic Psychology*, 23(6), 689-702. doi:10.1016/S0167-4870(02)00134-4
- Wegener, D. T., Petty, R. E., Smoak, N. D., & Fabrigar, L. R. (2004). Multiple routes to resisting attitude change. In Knowles, E. S. & Linn, J. A. (Ed.), *Resistance and persuasion*. New Jersey: Lawrence Erlbaum Associates.
- Williams, L. E., & Bargh, J. A. (2008). Experiencing physical warmth influences interpersonal warmth. *Science*, 322, 606-607. doi:10.1126/science.1162548
- Wright, P. (1974). The harassed decision maker: Time pressures, distractions, and the use of evidence. *Journal of Applied Psychology*, 59(5), 555-561. doi:10.1037/h0037186
- Wyer, R. S., Shen, H., & Xu, A. J. (2013). The role of procedural knowledge in the generalization of social behavior. In D. E. Carlston (Ed.), *The Oxford handbook of social cognition* (3rd ed.). New York, NY: Oxford University Press.
- Xu, A. J., & Wyer, R. S. (2008). The comparative mind-set from animal comparisons to increased purchase intentions. *Psychological Science*, 19, 859-864. doi:10.1111/j.1467-9280.2008.02169.x
- Yap, A. J., Wazlawek, A. S., Lucas, B. J., Cuddy, A. J. C., & Carney, D. R. (2013). The ergonomics of dishonesty: The effect of incidental posture on stealing, cheating, and traffic violations. *Psychological Science*, 24, 2281-2289. doi:10.1177/0956797613492425

APPENDIX A

MATERIALS FROM STUDY 1 OF ESSAY 1

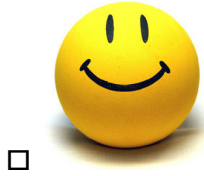
Default Choice Format Condition:

If you do NOT want to donate the extra \$0.1 you earned to the children's cancer nonprofit organization, please check the box besides the smiley face on the next page. If you do NOT check it, you will donate the money.



Control Choice Format Condition:

If you want to donate the extra \$0.1 you earned to the children's cancer nonprofit organization, please check the box besides the smiley face on the next page. If you do NOT check it, you will not donate the money and will receive the money at the end of the study.



APPENDIX B

MATERIALS FROM STUDY 2 OF ESSAY 1

We would like to know if you want to donate the \$0.10 extra reward in a hypothetical donation scenario. You will get the \$0.10 extra reward regardless of your choice in the following scenario. We just want to know what you might do if you encounter this scenario.

Default Choice Format & Unlimited Time Condition:

If you do NOT want to donate the extra \$0.1 you earned to the children's cancer nonprofit organization, please check the box besides the smiley face on the next page. If you do NOT check it, you will donate the money. You have unlimited time to make your choice.

- ☐  Check the box besides the smiley face to NOT donate the extra \$0.1 reward to the children's cancer nonprofit organization. Otherwise, you will donate the money but will receive your original payment \$0.5 at the end of the study.

Control Choice Format & Unlimited Time Condition:

If you want to donate the extra \$0.1 you earned to the children's cancer nonprofit organization, please check the box besides the smiley face on the next page. If you do NOT check it, you will not donate the money and will receive the money at the end of the study. You have unlimited time to make your choice.

- ☐  Check the box besides the smiley face to donate the extra \$0.1 reward to the children's cancer nonprofit organization. Otherwise, you will receive the extra money along with your original payment \$0.5 at the end of the study.

Default Choice Format & Limited Time Condition:

If you do NOT want to donate the extra \$0.1 you earned to the children's cancer nonprofit organization, please check the box besides the smiley face on the next page. If you do NOT check it, you will donate the money. You have 2 seconds to make your choice on the next page.

- ☐  Check the box besides the smiley face to NOT donate the extra \$0.1 reward to the children's cancer nonprofit organization. Otherwise, you will donate the money but will receive your original payment \$0.5 at the end of the study.

Control Choice Format & Limited Time Condition:

If you want to donate the extra \$0.1 you earned to the children's cancer nonprofit organization, please check the box besides the smiley face on the next page. If you do NOT check it, you will not donate the money and will receive the money at the end of the study. You have 2 seconds to make your choice on the next page.

☐  Check the box besides the smiley face to donate the extra \$0.1 reward to the children's cancer nonprofit organization. Otherwise, you will receive the extra money along with your original payment \$0.5 at the end of the study.

APPENDIX C

MATERIALS FROM STUDY 3 OF ESSAY 1

Default Choice Format, Unlimited Time, & Immediate Decision Condition:

On the next page, you will see a smiley face next to “Thank You”. If you do NOT want to donate the \$1 dollar you earned to a university athletic department, please click on the smiley face on the next page. If you do NOT click on it, you will donate the money. You have unlimited time to make your choice.



Control Choice Format, Unlimited Time, & Immediate Decision Condition:

On the next page, you will see a smiley face next to “Thank You”. If you want to donate the \$1 dollar you earned to a university athletic department, please click on the smiley face on the next page. If you do NOT click on it, you will not donate the money and will receive your \$1 at the end of the study. You have unlimited time to make your choice.



Default Choice Format, Limited Time, & Immediate Decision Condition:

On the next page, you will see a smiley face next to “Thank You”. If you do NOT want to donate the \$1 dollar you earned to a university athletic department, please click on the smiley face on the next page. If you do NOT click on it after 2 seconds, you will donate the money.



Control Choice Format, Limited Time, & Immediate Decision Condition:

On the next page, you will see a smiley face next to “Thank You”. If you want to donate the \$1 dollar you earned to a university athletic department, please click on the smiley face on the next page. If you do NOT click on it after 2 seconds, you will not donate the money and will receive your \$1 at the end of the study.



Default Choice Format, Unlimited Time, & Delay Decision Condition:

On the last page at the end of the questionnaire, you will see a smiley face next to “Thank You”. If you do NOT want to donate the \$1 dollar you earned to a university athletic department, please click on the smiley face on the next page. If you do NOT click on it, you will donate the money. You have unlimited time to make your choice.

**Control Choice Format, Unlimited Time, & Delay Decision Condition:**

On the last page at the end of the questionnaire, you will see a smiley face next to “Thank You”. If you want to donate the \$1 dollar you earned to a university athletic department, please click on the smiley face on the next page. If you do NOT click on it, you will not donate the money and will receive your \$1 at the end of the study. You have unlimited time to make your choice.

**Default Choice Format, Limited Time, & Delay Decision Condition:**

On the last page at the end of the questionnaire, you will see a smiley face next to “Thank You”. If you do NOT want to donate the \$1 dollar you earned to a university athletic department, please click on the smiley face on the next page. If you do NOT click on it after 2 seconds, you will donate the money.

**Control Choice Format, Limited Time, & Delay Decision Condition:**

On the last page at the end of the questionnaire, you will see a smiley face next to “Thank You”. If you want to donate the \$1 dollar you earned to a university athletic department, please click on the smiley face on the next page. If you do NOT click on it after 2 seconds, you will not donate the money and will receive your \$1 at the end of the study.



APPENDIX D

MATERIALS FROM STUDY 4 OF ESSAY 1

Default Choice Format & Additional Survey Condition:

If you do NOT want to complete this additional survey for extra \$0.3, please check the box besides the smiley face on the next page. If you do NOT check it, you will be directed to the additional survey when you proceed to the next page. You have unlimited time to make your choice on the next page.

- ☐  Check the box besides the smiley face to NOT participate in the additional survey (extra 5 minutes for extra reward \$0.3). Otherwise, you will be directed to the additional survey on the next page.

Control Choice Format & Additional Survey Condition:

If you want to complete this additional survey for the extra \$0.3, please check the box besides the smiley face on the next page. If you do NOT check it, you will skip the additional survey. You have unlimited time to make your choice on the next page.

- ☐  Check the box besides the smiley face to participate in the additional survey (extra 5 minutes for extra reward \$0.3). Otherwise, you will receive your original payment \$0.5 at the end of the study.

Default Choice Format & Donation Condition:

If you do NOT want to donate the extra \$0.3 you earned to the children's cancer nonprofit organization, please check the box besides the smiley face on the next page. If you do NOT check it, you will donate the money. You have unlimited time to make your choice.

- ☐  Check the box besides the smiley face to NOT donate the extra \$0.3 reward to the children's cancer nonprofit organization. Otherwise, you will donate the money but will receive your original payment \$0.5 at the end of the study.

Control Choice Format & Donation Condition:

If you want to donate the extra \$0.3 you earned to the children's cancer nonprofit organization, please check the box besides the smiley face on the next page. If you do NOT check it, you will not donate the money and will receive the money at the end of the study. You have unlimited time to make your choice.

- ☐  Check the box besides the smiley face to donate the extra \$0.3 reward to the children's cancer nonprofit organization. Otherwise, you will receive the extra money along with your original payment \$0.5 at the end of the study.

APPENDIX E

MATERIALS FROM STUDY 5 OF ESSAY 1

Default Choice Format & Additional Survey Condition:

If you do NOT want to complete this additional survey for extra \$0.01, please check the box besides the smiley face on the next page. If you do NOT check it, you will be directed to the additional survey when you proceed to the next page. You have unlimited time to make your choice on the next page.

- ☐  Check the box besides the smiley face to NOT participate in the additional survey (extra 5 minutes for extra reward \$0.01). Otherwise, you will be directed to the additional survey on the next page.

Control Choice Format & Additional Survey Condition:

If you want to complete this additional survey for the extra \$0.01, please check the box besides the smiley face on the next page. If you do NOT check it, you will skip the additional survey. You have unlimited time to make your choice on the next page.

- ☐  Check the box besides the smiley face to participate in the additional survey (extra 5 minutes for extra reward \$0.01). Otherwise, you will receive your original payment \$0.5 at the end of the study.

Default Choice Format & Donation Condition:

If you do NOT want to donate the extra \$0.01 you earned to the children's cancer nonprofit organization, please check the box besides the smiley face on the next page. If you do NOT check it, you will donate the money. You have unlimited time to make your choice.

- ☐  Check the box besides the smiley face to NOT donate the extra \$0.01 reward to the children's cancer nonprofit organization. Otherwise, you will donate the money but will receive your original payment \$0.5 at the end of the study.

Control Choice Format & Donation Condition:

If you want to donate the extra \$0.01 you earned to the children's cancer nonprofit organization, please check the box besides the smiley face on the next page. If you do NOT check it, you will not donate the money and will receive the money at the end of the study. You have unlimited time to make your choice.

- ☐  Check the box besides the smiley face to donate the extra \$0.01 reward to the children's cancer nonprofit organization. Otherwise, you will receive the extra money along with your original payment \$0.5 at the end of the study.

APPENDIX F

MATERIALS FROM STUDY 6 OF ESSAY 1

Self-interest Condition:

In the next study, we are interested in how people make decisions. You will have the opportunity to make a real donation to a health cause. It is important for you to make your decision in your best interest, trying to be rational and follow what will benefit you personally. Please think about the choices that work best for you. Your choices will be completely anonymous.

Other-interest Condition:

In the next study, we are interested in how people make decisions. You will have the opportunity to make a real donation to a health cause. It is important for you to make your decision in other's best interest, trying to be compassionate and follow important values. Please think about the choices that work best for those in need of help. Your choices will be completely anonymous.

Default Choice Format Condition:

If you do NOT want to donate the extra \$0.1 you earned to the children's cancer nonprofit organization, please check the box besides the smiley face on the next page. If you do NOT check it, you will donate the money. You have unlimited time to make your choice.

- ☐  Check the box besides the smiley face to NOT donate the extra \$0.1 reward to the children's cancer nonprofit organization. Otherwise, you will donate the money but will receive your original payment \$0.5 at the end of the study.

Control Choice Format Condition:

If you want to donate the extra \$0.1 you earned to the children's cancer nonprofit organization, please check the box besides the smiley face on the next page. If you do NOT check it, you will not donate the money and will receive the money at the end of the study. You have unlimited time to make your choice.

- ☐  Check the box besides the smiley face to donate the extra \$0.1 reward to the children's cancer nonprofit organization. Otherwise, you will receive the extra money along with your original payment \$0.5 at the end of the study.

APPENDIX G

MATERIALS FROM STUDY 2 OF ESSAY 2

Action Condition:

We are interested in how people make consumer decisions in daily shopping situations. You will be asked to perform several different tasks that you often perform when you shop. Because we would like to simulate real shopping situations, we want you to first clear up your mind and imagine being in a daily situation. To help you to do so, we would like you to come to this open space and imagine that you are going shopping. Please walk around in this open space as you often do in shopping situations.

Inaction Condition:

We are interested in how people make consumer decisions in daily shopping situations. You will be asked to perform several different tasks that you often perform when you shop. Because we would like to simulate real shopping situations, we want you to first clear up your mind and imagine being in a daily situation. To help you to do so, we would like you to come to this open space and imagine that you are going shopping. Please stand still on this open space as you often do in shopping situations.

Immediate Deadline Condition:

You have received a 50% off coupon for a highly attractive flu-shot sale at a health store. The health store will continue open for 5 minutes, at which point only customers who are in the clinic can receive the shot.

Distant Deadline Condition:

You have received a 50% off coupon for a highly attractive flu-shot sale at a health store. The health store will continue open throughout the day, so that customers can receive the shot in clinic for the rest of the day.

Measures of Purchase Intention:



1. Will you go to the store to check out the flu shot sale?

Won't go at all

0 1 2 3 4 5 6 7 8 9

Will definitely go

10

2. Are you likely to buy the flu shot?

Not likely at all

0 1 2 3 4 5 6 7 8 9

Very much likely

10

Measures of Attitude:

1. I was not interested in the flu shot.

Not at all

0 1 2 3 4 5 6 7 8 9

Very much

10

2. I liked the idea of the flu shot.

Not at all

0 1 2 3 4 5 6 7 8 9

Very much

10

3. Getting the flu shot was a good idea.

Not at all

0 1 2 3 4 5 6 7 8 9

Very much

10

4. Getting the flu shot seemed beneficial.

Not at all

0 1 2 3 4 5 6 7 8 9

Very much

10

Manipulation Checks of General Action-Inaction Goals (only in Action and Inaction conditions):

1. During this study, I was feeling energetic.

Not at all

0 1 2 3 4 5 6 7 8 9

Extremely

2. If I could, I would take a nap after this session.

Not at all

0 1 2 3 4 5 6 7 8 9

Extremely

- | | | | | | | | | | | | | |
|------------|---|---|---|---|---|---|---|---|---|---|----|-----------|
| 3. | If I could, I would go work out after this session. | | | | | | | | | | | |
| Not at all | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Extremely |
| 4. | During this study, I wanted to get some rest. | | | | | | | | | | | |
| Not at all | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Extremely |
| 5. | Today I was motivated to get a lot of work done. | | | | | | | | | | | |
| Not at all | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Extremely |
| 6. | My goal for today was to relax as much as possible. | | | | | | | | | | | |
| Not at all | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Extremely |

Measures of the Arousal Level (only in Action and Inaction conditions):

Manipulation Checks of Deadlines (only in Control condition):

1. The deadline to get the flu shot was:

Very loose											Very tight
0	1	2	3	4	5	6	7	8	9	10	

Too little time											Ample time
0	1	2	3	4	5	6	7	8	9	10	

Required acting right away											Allowed ample time to act
0	1	2	3	4	5	6	7	8	9	10	

Not likely feasible											Likely feasible
0	1	2	3	4	5	6	7	8	9	10	

Very hard to meet											Very easy to meet
0	1	2	3	4	5	6	7	8	9	10	

APPENDIX H

MATERIALS FROM STUDY 3 OF ESSAY 2

Action Condition:

Please imagine that you are in a situation: You are running. Please describe briefly the situation (where you are, when) and what the physical experience feels like in as much detail as possible. Do not worry about grammar or punctuation.

Inaction Condition:

Please imagine that you are in a situation: You are standing. Please describe briefly the situation (where you are, when) and what the physical experience feels like in as much detail as possible. Do not worry about grammar or punctuation.

Immediate Deadline Condition:

You have received a 50% off coupon for a highly attractive flu-shot sale at a health store. The health store will continue open for 5 minutes, at which point only customers who are in the clinic can receive the shot.

Distant Deadline Condition:

You have received a 50% off coupon for a highly attractive flu-shot sale at a health store. The health store will continue open throughout the day, so that customers can receive the shot in clinic for the rest of the day.

Measures of Purchase Intention:



1. Will you go to the store to check out the flu shot sale?

Won't go at all

0 1 2 3 4 5 6 7 8 9 10

Will definitely go

2. Are you likely to buy the flu shot?

Not likely at all

0 1 2 3 4 5 6 7 8 9 10

Very much likely

Measures of Attitude:

1. I was not interested in the flu shot.

Not at all 0 1 2 3 4 5 6 7 8 9 Very much
10

2. I liked the idea of the flu shot.

Not at all 0 1 2 3 4 5 6 7 8 9 Very much
10

3. Getting the flu shot was a good idea.

Not at all 0 1 2 3 4 5 6 7 8 9 Very much
10

4. Getting the flu shot seemed beneficial.

Not at all 0 1 2 3 4 5 6 7 8 9 Very much
10

Manipulation Checks of General Action-Inaction Goals:

1. During this study, I was feeling energetic.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

2. If I could, I would take a nap after this session.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

3. If I could, I would go work out after this session.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

4. During this study, I wanted to get some rest.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

5. Today I was motivated to get a lot of work done.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

6. My goal for today was to relax as much as possible.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

Measures of Physical Feelings:

1. Thinking about when you were completing the Imagination Task, did you feel that you were moving at that time?

Not at all 0 1 2 3 4 5 6 7 8 9 Very much
10

2. Thinking about when you were completing the Imagination Task, did you feel that you were static at that time?

3. Thinking about when you were completing the Imagination Task, did you feel that you were active at that time?

4. Thinking about when you were completing the Imagination Task, did you feel that you were passive at that time?

Measures of the Arousal Level:

- Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

2. Thinking about when you were completing Imagination Task, did you feel bored at that time?

APPENDIX I

MATERIALS FROM STUDY 4 OF ESSAY 2

Action Condition:

Please imagine that you are in a situation: You are running. Please describe briefly the situation (where you are, when) and what the physical experience feels like in as much detail as possible. Do not worry about grammar or punctuation.

Inaction Condition:

Please imagine that you are in a situation: You are standing. Please describe briefly the situation (where you are, when) and what the physical experience feels like in as much detail as possible. Do not worry about grammar or punctuation.

Immediate Deadline Condition:

You have received a 50% off coupon for a highly attractive flu-shot sale at a health store. The health store will continue open for 5 minutes, at which point only customers who are in the clinic can receive the shot.

Distant Deadline Condition:

You have received a 50% off coupon for a highly attractive flu-shot sale at a health store. The health store will continue open throughout the day, so that customers can receive the shot in clinic for the rest of the day.

Measures of Purchase Intention:



1. Will you go to the store to check out the flu shot sale?

Won't go at all

0 1 2 3 4 5 6 7 8 9 10

Will definitely go

2. Are you likely to buy the flu shot?

Not likely at all

0 1 2 3 4 5 6 7 8 9 10

Very much likely

1. I felt like attending the sale would just flow from how I was feeling.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

1. I felt like attending the sale would just flow from how I was feeling.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

2. Attending the sale just felt natural.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

2. Attending the sale just felt natural.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

1. The deadline of the flu shot sale was relevant to my decision to get the shot.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

1. The deadline of the flu shot sale was relevant to my decision to get the shot.

Not at all Very much

0 1 2 3 4 5 6 7 8 9 10

2. I paid a lot of attention to the deadline.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

2. I paid a lot of attention to the deadline.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

1. I liked the idea of the flu shot.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

1. I liked the idea of the flu shot.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

2. Getting the flu shot was a good idea.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

2. Getting the flu shot was a good idea.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

3. Getting the flu shot seemed beneficial.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

3. Getting the flu shot seemed beneficial.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

1. During this study, I was feeling energetic.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

1. During this study, I was feeling energetic.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

2. If I could, I would take a nap after this session.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

2. If I could, I would take a nap after this session.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

3. If I could, I would go work out after this session.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

3. If I could, I would go work out after this session.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

4. Thinking about when you were completing the Imagination Task, did you feel that you were passive at that time?

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

Measures of the Arousal Level:

1. When making my decision about the flu shot, I felt tired.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

2. When making my decision about the flu shot, I felt bored.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much

3. When making my decision about the flu shot, I felt jittery.

Not at all										Very much
0	1	2	3	4	5	6	7	8	9	10

4. When making my decision about the flu shot, I felt anxious.

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very much