

The Influence of Money on Goal Pursuit and Decision-Making: Understanding Money's Unique  
Impact on Goal Pursuit

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ABSTRACT

Previous research suggests that activating concepts of money and wealth can increase motivation to achieve personal goals. In this dissertation, I investigate how money affects pursuit of important personal goals, and how this motivation may be affected by goal attainability. In eight studies, I show that priming concepts of money and wealth leads individuals to pursue important personal goals to a greater degree than control groups, but only when a goal is more attainable. In contrast, when a goal is less attainable, those primed with money will be less likely to work towards goals relative to control groups. Furthermore, I examine why money may have a detrimental effect on motivation when individuals are faced with less attainable but important goals, and argue those primed with money become more concerned with maintaining a sense of efficacy, and thus disengage from pursuit when success is less certain. Thus, this research identifies the needs made salient by activating money—validating one's abilities. Finally, I show the relevance of these findings for consumer behavior, and discuss the additional implications of this work, as well as future research directions.

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## TABLE OF CONTENTS

Chapter	Page
I. GENERAL INTRODUCTION .....	1
II. THEORETICAL BACKGROUND.....	4
Research on Money.....	4
Research on Motivation.....	8
III. PURPOSE AND OUTLINE.....	10
Hypothesis Development.....	10
IV. PRIMING MONEY AND MOTIVATION: THE ROLE OF GOAL ATTAINABILITY.....	14
Study 1.....	14
Study 2.....	17
Study 3.....	20
Study 4.....	24
V. PRIMING MONEY AND SELF-HANDICAPPING: CLARIFYING MONEY'S MOTIVATING EFFECTS.....	28
Introduction to Self-handicapping Studies.....	28
Study 5.....	30
Study 6.....	33

VI.	PRIMING MONEY: RELEVANCE FOR CONSUMER CHOICE.....	36
	Introduction to Consumer Studies.....	36
	Study 7.....	37
	Study 8.....	39
VII.	GENERAL DISCUSSION.....	43
	REFERENCES.....	46
	APPENDIX A: PRIMES USED IN STUDY 1.....	63
	APPENDIX B: PRIME USED IN STUDY 2.....	66
	APPENDIX C: PRIME USED IN STUDY 4.....	68
	APPENDIX D: MATERIALS AND MEASURES – STUDY 1.....	70
	APPENDIX E: MATERIALS AND MEASURES – STUDY 2.....	72
	APPENDIX F: MATERIALS AND MEASURES – STUDY 3.....	74
	APPENDIX G: MATERIALS AND MEASURES – STUDY 4.....	76
	APPENDIX H: MATERIALS AND MEASURES – STUDY 5.....	78
	APPENDIX I: MATERIALS AND MEASURES – STUDY 6.....	81
	APPENDIX J: MATERIALS AND MEASURES – STUDY 7.....	84
	APPENDIX K: MATERIALS AND MEASURES – STUDY 8.....	85

LIST OF TABLES

TABLE 1 – SUMMARY OF ALL MAIN STUDY RESULTS.....52

TABLE 2 – MEDIATION RESULTS FROM STUDY 2.....54

TABLE 3 – MEDIATION RESULTS FROM STUDY 8.....54

## LIST OF FIGURES

FIGURE 1: SELECTED GOAL ATTAINABILITY RATINGS BY PRIME TYPE – STUDY 1.....	55
FIGURE 2: LIKELIHOOD OF GOAL PURSUIT BY PRIME CONDITION – STUDY 2.....	56
FIGURE 3: PERFORMANCE TOWARDS SET GOAL BY PRIME CONDITION AND ATTAINABILITY – STUDY 3.....	57
FIGURE 4: MOTIVATION TO PERFORM WELL BY PRIME CONDITION AND ATTAINABILITY – STUDY 4.....	58
FIGURE 5: WILLINGNESS TO HANDICAP BY PRIME CONDITION AND ATTAINABILITY – STUDY 5.....	59
FIGURE 6: TIME SPENT ON TASK BY PRIME CONDITION AND HANDICAP PRESENCE – STUDY 6.....	60

FIGURE 7: WILLINGNESS TO PAY FOR TABLET BY PRIME AND  
ATTAINABILITY – STUDY 7.....61

FIGURE 8: WILLINGNESS TO BUY PROGRAM BY PRIME AND  
ATTAINABILITY – STUDY 8.....62

## I. GENERAL INTRODUCTION

Given the ubiquitous presence of money in our daily lives, it is important to understand how thoughts of this resource affect motivation and behavior. Recent work demonstrates that merely activating thoughts of money and wealth can lead individuals to work longer on tasks and pursue more self-related goals (vs. social or helping behaviors; Vohs, Mead, and Goode 2006). This research attests to money's motivating potential (Lea and Webley 2006), specifically for work and self-related pursuits, and suggests that when a person feels they have monetary resources, they have an increased sense of self-sufficiency (Pfeffer and DeVoe 2009; Vohs and Baumeister 2011).

Much, however, remains unknown about the influence of money on motivation. For instance, does money always increase one's motivation to work towards self-relevant goals? The general preference for personal (vs. social) goals, as indicated by past research, does not necessarily confirm that money has a constant, beneficial influence on personal goal pursuit. In addition, while past work supports the connection between money and more self-interested behaviors, the process behind these effects remains unclear. In order to determine if there are boundaries to money's motivating effects, it is necessary to study how relevant factors, such as goal attainability, could interact with and affect subsequent motivation. Moreover, by exploring boundaries, it is also possible to determine more precisely why money has a unique impact on motivation. Thus, by looking at how individuals respond to goals of differing attainability levels, we can test whether thoughts of having this resource do indeed make a person feel they can achieve any feat they attempt, or if money triggers different kinds of needs altogether.

In this dissertation, I investigate how activating concepts of money and wealth can affect pursuit of important personal goals, and how motivation may be affected by goal attainability. In eight studies, I show that priming concepts of money and wealth leads individuals to pursue important personal goals to a greater degree than control groups, but only when a goal is more attainable. In contrast, when a goal is less attainable, those primed with money will be less likely to work towards personal goals relative to control groups. Furthermore, I examine why money may have a detrimental effect on motivation for less attainable pursuits, and show that individuals primed with money become more concerned with validating one's abilities, and thus withdrawal effort when success is not likely. To test this process explanation, I include measures of efficacy, and show that priming money decreases feelings of efficacy for those facing a less attainable goal. Moreover, I provide further evidence for this process explanation by including self-handicapping manipulations in two studies. These studies demonstrate that feeling like one has money leads individuals to act in ways to preserve a sense of efficacy (e.g. self-handicap), and that those primed with money will work longer towards less attainable goals when concerns of about preserving efficacy are removed (e.g. a handicap is provided). Finally, I present relevant marketing implications and demonstrate the downstream consequences of these findings. Specifically, I am able to show that mere reminders of money and wealth can affect product evaluations in similar ways—increasing interest in products when goals appear more attainable, but decreasing interest in products when goals appear less attainable.

This work offers several contributions. First, it extends findings demonstrating the motivating effect of money, but also identifies specific boundary conditions, highlighting the role of goal attainability. Second, a more parsimonious explanation for money's impact on behavior is offered, showing that money motivates a need to validate abilities and a desire to maintain a

sense of efficacy when pursuing more important goals. Competing theories about how money influences behavior in this context are examined, ultimately showing that money does not increase the need for a reward, or enhance efficacy (belief that one *is* self-sufficient), but rather amplifies the need to maintain a sense of efficacy (need to *remain* self-sufficient). This dissertation thus bridges research on the psychology of money with research on motivation and goal-directed behavior, providing a more precise explanation of how money affects motivation. In addition, these findings have relevant marketing implications, as I show how reminders of money and wealth have a direct impact on product evaluations and willingness to buy. Finally, I discuss how these findings challenge the notion that feeling like one has money should necessarily lead to more successful goal pursuit, or inevitably increase perceptions of control over all outcomes. By illustrating the limits of money's motivating effects, this research suggests that it is time to examine more closely if money does indeed serve the best interests of those who have it.

## II. THEORETICAL BACKGROUND

In this next section, I will review research relating to money and primarily the psychology of money, highlighting the main findings that have emerged and the questions still remaining. From there, I will look to the goal and motivational literature, to make predictions about the role of attainability in the pursuit of important personal goals. Following this review, I will draw from previous findings to make predictions about how money may affect motivation in this particular context.

### *Research on Money*

Money plays a ubiquitous role in daily life. At its essence, money acts as a means to determine the value of other commodities and enables exchanges of goods and services, and as such is credited for helping economies grow and societies function more smoothly (Hume 1752; Smith 1776). Much research that has been generated on this topic in recent years, however, suggests that money represents more than just a mere economic tool. Rather, money is often thought to carry its own special status, one that is distinct and more meaningful than other resources (Belk and Wallendorf 1990; Krueger 1986; Lea and Webley 2006), and the habitual use of money in modern society has been thought to influence how people make decisions about worth more generally (Simmel 1978).

Given its unique standing in society, it follows that money may inevitably influence the behavior of those who possess it. The idea that having money, and in particular having an abundance of money, can influence behavior in distinct ways has attracted increased research

attention in recent years. For instance, Kraus et al. (2012) propose that individuals with increased monetary resources focus more on how their own internal states (vs. external, contextual factors) influence their life outcomes. Indeed, recent work demonstrates these individuals feel more in control over their lives compared to lower class individuals, and consider themselves more responsible for their own personal achievements (Gallo, Bogart, Vranceanu, and Matthews 2005; Johnson and Krueger 2005). Additional research shows that individuals with higher socio-economic status (compared to those of lower socio-economic status) are also less generous towards others (Piff et al. 2010).

Other work examines more directly how thoughts of having monetary resources can impact behavior. This research shows that priming concepts of money and wealth can motivate people to work longer on tasks, leads individuals to prefer working alone, and makes individuals less likely to interrupt their work to help others (Vohs, Mead, and Goode 2006). These researchers suggest that mere reminders of money and wealth increase feelings of self-sufficiency, and thus lead people to believe they can solve problems on their own without outside help. In line with the research above, these findings suggest that feeling one has money can increase motivation towards work and self-relevant pursuits, while negatively affecting social connections. Notably, the motivating effect of money was not found when individuals thought of having very little money (Vohs et al. 2006; Vohs and Baumeister 2011). Other studies have likewise shown that activating thoughts of money increases the likelihood individuals will work versus spend time with others (Mogilner 2010) and reminders of money have decreased interest in prosocial behaviors in other settings (Liu and Aaker 2009; Pffefer and DeVoe 2009).

Unanswered questions nonetheless remain. For instance, although studies show that priming money increases preference for working, even when other options (e.g. helping others)

are available, these studies do not indicate whether money makes people motivated to work towards any one type of goal, per se. That is, previous work has not indicated any specific positive outcomes that individuals are interested in striving towards (for example, to demonstrate one's abilities), but rather gives them choices between working by oneself and engaging with others. If we are interested in testing whether money does indeed motivate self-interested behavior, highlighting the fact that individuals would be acting in a way to achieve a self-relevant higher order goal would more clearly determine whether individuals are more motivated to act when their actions would presumably benefit themselves.

For this reason, in the present work, all studies specify a valued personal goal that individuals can strive towards, rather than present an option to choose between a personal and social goal. Specifically, I focus on instances in which attaining a specific goal (e.g. doing well on a task, exercising regularly) can help a person realize a higher order goal (e.g. demonstrate abilities, get in better shape; see Baumgartner and Pieters 2008). In all studies presented, I measure willingness to engage in more basic level goals (measure whether or not individuals are motivated to engage in a specific action). However, realizing that motivation to pursue such goals is generally motivated by their connection to higher order goals (Baumgartner and Pieters 2008), I focus on this personal relevance by identifying higher order goals in studies. Providing a higher order goal that is relevant to oneself allows for a more realistic test of behavior, since such goals are typically present in real world settings, and highlighting such goals may be more likely to prompt goal-directed behavior (Vallacher and Wegner 1987).

Moreover, it is less clear from past work exactly why feeling that one has money would influence motivation. While there is a suggestion it does so by enhancing self-sufficiency, there is no formal evidence that this drives motivation, leaving open the possibility that other factors

may play a role. For example, while recent research supports the connection between money and more self-interested behaviors, thoughts of money may influence goal pursuit in more specific ways—affecting goal orientations, what information individuals pay attention to in such contexts, and what inferences they may make about the worthiness of pursuit. Again, given that past work focuses on the choice between personal and social goals, and does not vary other relevant goal factors that could shed light on the underlying drivers of behavior, we have yet to discover more specifically why money seems to motivate personal goal pursuit in certain cases.

Thus, the present work attempts to clarify why money affects motivation, by focusing exclusively on the pursuit of important personal goals, but also by varying attainability of the goals individuals are set to pursue. Given that a great deal of research has examined the impact of attainability on pursuit, this allows us to make specific predictions about how individuals would react to a goal of varying degrees of attainability, when such a goal is in service of a higher order, valued personal goal. Varying attainability can also help illuminate the role that money could play, as it allows us to test whether money does indeed lead to enhanced feelings of competency and efficacy compared to control groups, or if it affects motivation for other reasons. Next, I will review past literatures to determine how varying attainability may impact motivation more generally in this context, and from there discuss how having money reminders may add additional considerations in goal pursuit.

## *Research on Motivation*

As noted earlier, the precise reasons why money might motivate personal goal pursuit is unclear from previous work, which has primarily examined how thoughts of money leads one to choose to work over spending time with or helping others. Thus, in this research I consider features of goal pursuit that may help identify more clearly how money affects motivation. Including specific information about attainability may help pinpoint money's unique influence on motivation, given the ways in which attainability can affect motivation have been investigated at great length. In this section, I will first make predictions on how individuals may react more generally in the face of a more (vs. less) attainable pursuit, when pursuit is for a personally relevant higher order goal.

Past research indicates that individuals are more likely to act when they value an outcome (Atkinson 1957; Dolman 1955; Vroom 1964), but other factors, like the attainability of a goal, can also play a role. For instance, if a person is looking to get in better shape, they may decide to exercise, and set a goal they are less certain they can realize (e.g. work out 7 days a week). Though this is less attainable, if the higher order goal of being in shape is greatly valued, then the difficulty of achieving this goal could affirm the value of their pursuit and inspire commitment. On the other hand, they could consider setting a more attainable goal (e.g. work out 3 times a week). While such a target could be considered more desirable if it is reachable, it could also create a mismatch when an individual greatly values the higher order goal—that is, it could seem less likely that this method would be considered the “best way” to help realize such a valued higher order goal (Kim and Labroo 2011).

Past research lends support for these predictions. While difficulty can be associated with less positive evaluations in certain consumer contexts (Bornstein 1989; Schwarz 2004), much

research has demonstrated that individuals take more pride in success when it is achieved at higher levels of difficulty (Festinger 1957; Gerrard and Mathewson 1966; Wicklund and Brehm 1976; Zhang et al. 2010). Moreover, recent research suggests that individuals associate increased effort with overall effectiveness of goal pursuit (Labroo and Kim 2009a). Related work proposes that increased effort can serve as a motivational force, enabling individuals to feel as if they have driven their own outcomes (Cutright and Samper 2014), and difficulty can also suggest greater meaning in an activity (Olivola and Shafir 2013). Furthermore, additional research suggests that the presence of highly attainable goals may demotivate pursuit, as they can make current actions seem less worthwhile (Huang and Zhang 2011). Thus, if confronted with a higher order goal that is personally important (demonstrating a valued ability), individuals may infer that an action must be worthwhile if the pursuit feels challenging, and motivation increases. On the other hand, if a basic goal is realized too easily (i.e. highly attainable), individuals may question its usefulness for achieving a valued higher order goal, and become less motivated.

Thus, I predict in line with this research above that when asking people to work towards a personally relevant higher order goal, making a basic level goal appear less (vs. more) attainable should increase motivation and subsequent pursuit. If making a pursuit more difficult to achieve can increase motivation when a higher order goal is greatly valued, how does priming money affect motivation in this particular context? In the next section, I will consider how those primed with money may react in unique ways when faced with more (vs. less) attainable goals.

### III. PURPOSE AND OUTLINE

#### *Hypothesis Development*

When examining how money impacts the pursuit of self-relevant goals, it is possible to make different predictions regarding the role of attainability. If priming money leads to greater feelings of self-sufficiency, as suggested in the literature, the presence of less attainable pursuits may enhance motivation relative to control groups, as individuals are more likely to have a sense that they can achieve anything on their own. Therefore, according to the self-sufficiency hypothesis, one could expect a main effect on motivation—if money leads to increased feelings of efficacy, then motivation should increase relative to control groups, regardless of goal attainability. However, it is possible that thoughts of having money could activate a more specific goal orientation—for instance, a need to validate one’s abilities. The idea that money could create such a goal orientation is consistent with past research on the psychology of money, as a focus on one’s abilities can have positive effects on motivation—if individuals generally strive to validate their ability, performance enhancement can occur when success is expected (Elliott and Dweck 1988; see Dweck and Leggett 1988).

The idea that money activates a need to validate one’s abilities could also be supported by additional findings from research. For one, it has been shown that individuals focused on performing and validating abilities (vs. learning and mastery of a task) have less positive social interactions with others (Janssen & Van Yperen 2004). Specifically, these researchers suggest that individuals with this orientation are more likely to view others as “threats”, and are thus less likely to build quality relationships with those in their work environment. Other research also shows that those who prioritize validating abilities are less likely to seek help from others when working towards a goal (Grant and Dweck 2003), suggesting that asking for help would

challenge the notion that they are capable. As such, the idea that money creates a need to validate abilities would be consistent with findings from research examining money's impact on interpersonal behavior (Vohs et al. 2006), which highlights how money creates a preference for working alone and reduces social interaction. If this is the case, and money does create a need to validate abilities, it possible to interpret the results from previous work in a new way. That is, it is possible that money has an impact on one's tendency to work, not because it makes people feel they can do anything on their own, but because it creates a need to feel that one can do anything on their own. Rather than enhance efficacy (belief that one *is* self-sufficient), it could be that money amplifies the need to maintain a sense of efficacy (need to *remain* self-sufficient).

If money creates a need to validate abilities, one could then expect that varying attainability may not always have a beneficial influence on personal goal pursuit. For one, while the need to validate abilities can lead to enhanced performance when success is expected, such an orientation can also lead to lower motivation in cases when success is not guaranteed (Elliott & Dweck 1988; Grant and Dweck 2003). In addition, if individuals primed with money tend to be more concerned about their own self-interests (Pfeffer and DeVoe 2009), they may be more likely to disengage from a pursuit if their actions may not lead to a positive benefit for themselves (e.g. when a chance to validate their abilities is not likely). If this is the case, individuals may be more likely to withdraw effort when faced with challenging goals, if their sense of competency is at risk (Harris and Snyder 1986).

If money indeed creates a need to validate abilities and preserve efficacy, this would lead to different effects in the face of more or less attainable goals—that is, it should enhance motivation when a goal is more attainable, but reduce motivation for less attainable goals. I test these hypotheses, and find evidence for these effects, in eight studies. Specifically, I show that

priming concepts of money leads individuals to pursue important self-related goals to a greater degree than control groups, but *only* when a goal is more attainable. In contrast, when a goal is less attainable, those primed with money will be less likely to work towards personal goals relative to control groups. Thus, findings from the studies to be presented support the hypothesis that activating money creates a need to validate one's abilities (vs. an increased feeling of self-sufficiency).

While the design and focus of these studies is intended to test these competing hypotheses about money's impact on motivation, I also provide additional methods to more clearly demonstrate what drives these effects. For one, I measure process variables in these studies, and show that individuals in the money condition (compared to control groups) experience a decreased sense of efficacy in the face of less attainable goals, which in turn reduces motivation and likelihood of goal pursuit. In addition, I also include self-handicapping manipulations in two studies, which provide more conclusive evidence for this process explanation and rule out other competing explanations. For instance, one could also argue that activating money could increase the desire for a reward or positive outcome, as individuals wish to maximize their likelihood of receiving a benefit (Liu and Aaker 2009).

To test this, I show in one study that individuals are more willing to self-handicap when primed with money (relative to the control condition) when the goal is less attainable. That is, individuals primed with money are more likely to create performance obstacles in order to influence the explanations given for subsequent negative outcomes (Berglas and Jones 1978). This suggests, consistent with the handicapping literature, that individuals primed with money are more motivated by the need to protect their sense of competence (Berglas and Jones 1978). I also show that when individuals are given a handicap (an external reason for not doing well),

those primed with money become more motivated and persistent in the face of a less attainable goal. Thus, I am able to reverse effects for less attainable goals when individuals do not feel responsible for failure, showing that a need to preserve a sense of efficacy (vs. a need to receive a reward or achieve a positive outcome) drives this behavior. Throughout studies, I also use additional methods and measures to rule out other possible alternative explanations for these findings.

The studies in this dissertation are divided into several sections. In the first section, I will examine how priming individuals with money can affect selection of goals, and willingness to pursue less attainable goals. I will also show in more controlled settings how money affects motivation to pursue more (vs. less) attainable goals, when a higher order goal is specified. In the following section, I examine the process in greater depth by adding self-handicapping manipulations, which allow for a more precise test of money's impact on motivation, as well as an opportunity to reverse some of the effects from previous studies. In the final section, I extend these findings to reveal their relevance in consumption contexts. Note that while studies follow a similar format throughout, I do include studies where goal attainability is either manipulated and set (as in studies 3, 4, 5, 6, and 8) as well as studies where individuals are asked to select goals of differing attainability levels (as in studies 1, 2, and 7). By including studies in a variety of contexts, I am thus able to show that these findings are robust and can also emerge in more naturalistic settings. Regardless of the study format, across studies I am able to show that individuals primed with money do react in more self-defeating ways when faced with less attainable goals, making it less likely to argue that these findings are limited to certain contexts, or emerge due to factors inherent to any one method.

## IV. PRIMING MONEY AND MOTIVATION: THE ROLE OF GOAL ATTAINABILITY

### STUDY 1

The purpose of study 1 is to test how activating concepts of money and wealth affect goal selection. Specifically, I am interested in whether individuals primed to think about money and wealth place more weight on certain goal attributes (namely, attainability or importance), and look to measure their preferences by examining what goals they select. Adapting a method from research examining how individuals weight goal features (Kruglanski et al. 2000), I predict, in line with the main hypotheses, that money will lead individuals to select goals they believe are more attainable (vs. more important). Importantly, I also want to confirm that priming money and wealth concepts have a unique effect on goal selection, as opposed to priming other types of money associations. For this reason, along with a control condition I include two additional prime conditions—a money spend and money budget prime. I predict, in line with findings from past work (Hansen, Kutzner, and Wänke 2013; Vohs et al. 2006), that primes related to money and wealth (but not primes related to spending or saving money) will impact goal selection and preference for more attainable goals.

#### Design and Procedure

One hundred and twenty-six individuals ( $M_{\text{age}} = 31.10$ , 44.4% Female) were recruited from an online panel and participated in the study for nominal payment. Participants were randomly assigned to a 4 Prime (Money Wealth/Money Spend/Money Budget/Control) between

subjects design. Participants first participated in a sentence scramble priming task (Wyer & Srull 1979), used in previous studies on the psychology of money (Mogilner and Aaker 2009; Vohs et al. 2006). Participants in the money wealth condition unscrambled 9 filler phrases and 9 money and wealth related sentences (e.g. “the hit jackpot town”, “we wealthy tall are”) while those in the money spend and money budget conditions were exposed to 9 fillers and 9 sentences about spending (e.g. “the hit ATM town”, “write a check story”) and saving money (e.g. “we frugal tall are”, “watch the step budget”), respectively. Individuals in the control condition unscrambled 18 filler sentences with neutral words and phrases. Immediately following the priming task, individuals were given a goal selection task used in previous studies to identify preferences for specific goal features (Kruglanski et al. 2000). Specifically, individuals were asked to select a goal they hoped to achieve, and listed the goal. After listing the goal, individuals rated how attainable they thought the goal they selected was (1=not attainable at all/11=very attainable) and how important the goal was to them (1=not important at all/11=very important). The order of these two questions was randomized (no order effects emerged). Finally, all participants answered a funneled debrief (Bargh and Chartrand 2000) to probe for any suspicions about the purpose of the study; none of the respondents indicated any awareness regarding the true purpose of the study.

## Results and Discussion

Goals were coded to determine whether those primed with money listed more goals pertaining to money, relative to the control group (e.g. “saving money”). Notably, 77.8% of goals listed were not directly money related, and no differences emerged by condition for the tendency to list money related goals ( $p = .68$ ).

A one way ANCOVA was run with goal attainability as the dependent variable. In line with previous work (Kruglanski et al. 2000), goal importance was used as a covariate when looking at attainability ratings (removing this covariate did not impact the pattern of these results). As expected, a main effect of prime emerged ( $F(1,121) = 2.92, p = .04$ ). Multiple comparisons were conducted to determine differences in attainability ratings by prime. Individuals in the money wealth condition rated the goal they selected as more attainable than those in the control condition ( $M_{\text{wealth}} = 9.97, M_{\text{control}} = 9.10; p = .02$ ), the money spend ( $M_{\text{wealth}} = 9.97, M_{\text{spend}} = 9.16; p = .008$ ), and money budget conditions ( $M_{\text{wealth}} = 9.97, M_{\text{budget}} = 9.41; p = .06$ ). In addition, a one way ANCOVA was run with importance as dependent variable (using goal attainability as a covariate). No differences in importance ratings emerged among any conditions ( $M_{\text{wealth}} = 10.09, M_{\text{control}} = 10.00, M_{\text{spend}} = 10.44, M_{\text{budget}} = 10.34; F(1,121) = 1.58, p = .20$ ).

*Discussion.* This study provides initial indications that individuals primed with concepts of money and wealth select goals to pursue differently compared with control groups, but also when compared with those primed to think about money in other ways (e.g. spending or saving money). Those in the money wealth condition rate the goals they select as more attainable than the comparison groups, but not as more important. This test could suggest that individuals, when primed with money and wealth, are more concerned with goal attainability, but do not necessarily value personal goals more, or pursue goals based on importance. In this way, this test serves as the first evidence we have that attainability of goals becomes a more attractive feature when individuals are first primed to think about money and wealth. It is possible, however, that individuals primed with concepts of money and wealth do feel more confident than the comparison groups, and thus believe that any goal they select is more attainable. Notably, I conducted a replication of this study with additional measures and find similar effects (i.e. show

that priming wealth leads individuals to select more attainable goals than control groups), but do not find any differences in self-confidence ratings between conditions ( $p = .31$ ). Still, to determine more concretely whether money leads to a preference for goal pursuit based on attainability, a different manipulation may be required. In the next study, I have individuals list an important but less attainable goal. In this way, I am able to determine if individuals primed with money and wealth believe they can achieve any goal, even a less attainable one. Given that the previous study confirmed that differences in goal preferences emerge when money wealth concepts are primed, only this money prime is used moving forward.

## STUDY 2

### Design and Procedure

Sixty individuals ( $M_{age} = 30.30$ , 36.7% Female) from an online panel participated in the study for nominal payment. Individuals were randomly assigned to a 2 Prime (Money Prime/Control) between subjects design. Participants were told they would be participating in two separate studies. In the first study, individuals completed the sentence scrambling prime. Those in the money condition unscrambled 9 filler and 9 money and wealth related phrases (e.g. “rich here get now”, “millions he they made”). Individuals in the control condition unscrambled 18 filler phrases (“someone here get now”, “houses he they made”). Therefore in this study, those in the control condition were exposed to the same phrases as the money condition, with money and wealth related words removed.

Immediately after the priming task, individuals were instructed to list a goal they could pursue that would be important to achieve, as it would reflect very highly on oneself, but that would be less attainable (i.e. more difficult to achieve). After listing the goal, individuals rated how likely they were to pursue the goal (not likely at all/very likely). Individuals then responded to questions intended to measure feelings of efficacy (I feel like I could do well working towards this goal on my own, I feel like I could take ownership over this goal (strongly disagree/strongly agree);  $\alpha=.94$ ). Finally, individuals were given items to measure their mood (happy/excited/enthusiastic (not at all/very);  $\alpha=.90$ ) and feelings of power (forceful/domineering/dominant (not at all/very);  $\alpha=.94$ ). All measures used a scale from 1-11.

## Results and Discussion

Goals listed were coded to determine whether those in the money condition listed more goals pertaining to money (relative to the control group). 81.7% of goals listed were not directly money related, and no differences emerged by condition for the tendency to list money related goals ( $p = .27$ ).

Likelihood of pursuit was analyzed via a 2 Prime (Money/Control) ANOVA. Individuals in the money condition rated themselves as less likely to pursue the goal they listed ( $M_{\text{money}} = 4.38$  vs.  $M_{\text{control}} = 6.55$ ;  $F(1, 58) = 5.76, p = .02$ ). Moreover, efficacy ratings were lower for those in the money condition relative to the control condition ( $M_{\text{money}} = 5.16$  vs.  $M_{\text{control}} = 7.29$ ;  $F(1, 58) = 9.11, p = .004$ ). I predicted a mediation model (INDIRECT Preacher, Rucker, and Hayes 2007), wherein prime impacts efficacy which in turn influences likelihood of goal pursuit. The indirect effect of prime on likelihood of goal pursuit (prime  $\rightarrow$  efficacy perceptions  $\rightarrow$  likelihood) was significant ( $-2.00$ , the 95% bootstrap CI =  $-3.2607$  to  $-.6706$ ). In

addition, I measured feelings of power and positive affect to see if these were affected by the money prime, but did not find significant differences between conditions for positive affect ( $M_{\text{money}} = 5.81$  vs.  $M_{\text{control}} = 6.04$ ,  $F(1, 58) = .11$ ,  $p = .74$ ) or power ( $M_{\text{money}} = 3.72$  vs.  $M_{\text{control}} = 3.28$ ,  $F(1, 58) = .51$ ,  $p = .48$ ).

*Discussion.* The results from this study provide more conclusive evidence that individuals primed with concepts of money and wealth do not seek out more difficult or less attainable goals. Thus, looking at results from study 1, it appears that individuals primed with money, rather than assuming they can achieve any goal they select, are in fact more resistant to selecting a less attainable goal. This study also provides process support. In comparison to control groups, those primed with money do experience adverse effects in terms of personal efficacy when confronted with a more difficult to reach goal, which decreases likelihood of pursuit. Such findings are thus consistent with the initial theorizing—when pursuing an important personal goal, low attainability can still be motivating for control conditions. However, reminders of money lead to different inferences about the worthiness of pursuit in these circumstances. In addition, it could also be argued that affect or feelings of power could be affected by the money prime. However, no difference in are found in either affect or power by condition, ruling these out as possible drivers of the effects.

Finally, it should be noted that I conducted a similar study with 63 individuals ( $M_{\text{age}} = 34.06$ , Female = 44.4%) asking them to select a difficult to achieve goal, as well as a method they would use to pursue the goal, and then asked them how committed they would be to method they selected (1=not at all/11= very). Individuals primed with money were less likely to be committed to using their selected method, compared to control groups ( $M_{\text{money}} = 9.00$  vs.  $M_{\text{control}} = 9.91$ ;  $F(1, 61) = 3.92$ ,  $p = .05$ ). These results, in conjunction with previous findings, would suggest that

even when given the chance to select goals themselves, as well as method to achieve goals, individuals are more resistant to taking actions in situations when that goal is less attainable.

In all, these initial studies provide initial evidence that priming money and wealth may decrease interest in less attainable, but personally relevant goals. In the next studies I will test these effects in a more controlled environment to ensure that selection-related factors are not driving these results. Moreover, I add high attainability conditions in the next studies to provide comparison groups, and to test in which cases money can either motivate or demotivate pursuit.

### **STUDY 3**

In the next study, I replicate the results of study 2 in a more controlled setting by providing individuals with a task. While being able to show the effects in more naturalistic setting can be helpful in demonstrating validity, I also want ensure that other factors related to the previous method are not affecting results. Thus, by employing a new method I will be able to show that money affects motivation when individuals are given a less attainable goal, as well as when they select less attainable goals themselves.

Moreover, I vary attainability of goals in the next studies. If individuals primed with money are indeed motivated to validate their abilities, performance enhancement can occur when success is expected; however, such an orientation can also lead to lower motivation in cases when success is not guaranteed (Elliott and Dweck 1988). As such, I expect that those primed with money will be less interested in persisting on tasks in the face of less attainable goals, but more persistent (relative to control groups) when faced with highly attainable goals. These results would also be consistent with past work showing that individuals primed with money

persist more compared to control groups on tasks (Vohs et al. 2006), while showing that a boundary condition exists for less attainable goals.

In this next study, I will give individuals a task and measure motivation through actual behavior—specifically by examining how individuals perform relative to the given goal. In this study both the task and the higher order goal (intelligence) are held constant, and I vary the amount of work required for “good performance”, making it appear very difficult or easy to do well on the task. In this way, I test more directly how money affects goal pursuit, when the higher order goal is important, but when the basic level goal appears more or less attainable.

#### Design and Procedure

One hundred and twenty two participants ( $M_{Age} = 32.70$ , 35.2% Female), were recruited from an online panel to participate in the study for nominal payment. Participants were randomly assigned to a 2 Prime (Money/Control) x 2 Attainability (High/Low) between subjects design, and told they were completing two different studies. For the first part, individuals participated in the same priming task as in Study 1 and 2. Immediately following the priming task, individuals were told they would be taking part in a new task. They were told that they would be participating in a word scramble task designed to test their intelligence, and that they were to complete as many of these word scrambles as possible. For the high attainability condition, individuals were told that in order to perform well they had to unscramble at least 8 words, while in the low attainability condition individuals were told that they would need to correctly unscramble at least 32 words to perform well. After reading these instructions individuals were also told that they could end the task at any time.

On the next screen, individuals were presented with the first word scramble, and additional scrambled words were presented on each following screen. On each screen after the word scramble they were then given the option to “Go to the next word” or “End task-Quit”. If individuals selected the next button, they proceeded to the next word, while the end task button brought them to demographic questions. Performance was determined by how persistent individuals were towards the given goal. This was calculated by taking the goal score they were given (using a goal score of 8 for high attainability, and a goal score of 32 for low attainability) and subtracting this from the number of words individuals actually went on to complete. In addition, to measure if individuals performed well (unscrambled words correctly), I coded responses for each time individuals unscrambled a word correctly, and totaled this value to create a measure of total correct.

## Results and Discussion

*Pretest.* I conducted a pretest to test whether individuals could perceive differences in attainability between conditions, and also whether they considered the higher order goal set for the task (intelligence) to be personally important. Sixty-four individuals ( $M_{\text{age}} = 32.42$ , 48.4% Female) were recruited from an online panel and participated in the study for nominal payment. Individuals were given a description of the task used in the main study, and presented with either the high or low attainability condition. Then individuals rated how attainable they thought the performance goal was (1=not at all/11=very) and how important it was to them to be intelligent (1=not at all /11=very). Individuals in the high attainability condition rated the goal as more attainable ( $M_{\text{high}} = 8.00$  vs.  $M_{\text{low}} = 6.75$ ;  $F(1, 62) = 4.35$ ,  $p = .04$ ). In addition, all participants rated being intelligent as important to them ( $M = 9.17$ ), which is significantly higher from the

median scale of 6 ( $t(63) = 13.48, p < .001$ ) with no differences emerging between attainability conditions for goal importance ratings ( $p = .21$ ).

*Main Results.* 3 individuals did not complete the priming task (completed less than 8 of the 18 word scrambles) and were removed from analyses (removing these participants did not impact the pattern of results). A 2 Prime (Control/Money) x 2 Attainability (High/Low) ANOVA was run with performance towards goal as a dependent variable. A main effect emerged for attainability, as individuals in the high attainability condition surpassed the goal, as compared to the low attainability condition, where individuals on average performed below the performance goal ( $M_{\text{high}} = 5.51$  vs.  $M_{\text{low}} = -13.88; F(1, 115) = 99.68, p < .001$ ). A Prime x Attainability interaction emerged for performance towards goal ( $F(1, 115) = 9.17, p = .003$ ). In the high attainability condition, individuals in the money condition completed more words past the goal of 8 than those in the control condition ( $M_{\text{money}} = 7.69$  vs.  $M_{\text{Control}} = 3.32; F(1, 59) = 4.17, p = .05$ ). However, in the low attainability condition, while in both conditions individuals on average fell below the goal of 32 words, individuals in the control condition on average finished closer to the goal compared to the money condition ( $M_{\text{money}} = -17.58$  vs.  $M_{\text{Control}} = -10.19; F(1, 56) = 5.09, p = .03$ ; see Figure 3).

A 2 Prime (Control/Money) x 2 Attainability (High/Low) ANOVA revealed an interaction for total words correct ( $F(1, 115) = 10.80, p = .001$ ). In the high attainability condition, individuals completed more words correctly when primed first with money ( $M_{\text{money}} = 13.53$  vs.  $M_{\text{control}} = 10.29; F(1, 59) = 3.00, p = .08$ ). However, in the low attainability condition, individuals in the money condition had fewer correct words than the control condition ( $M_{\text{money}} = 10.50$  vs.  $M_{\text{control}} = 17.84; F(1, 56) = 7.76, p = .007$ ).

*Discussion.* This study provides more consistent evidence that when a goal appears less attainable, individuals primed with money are less motivated and demonstrate less persistence towards the goal. I show that money indeed has a demotivating effect when a goal is more difficult to achieve, and ability to perform well is thus in question. In contrast, when attainability is high, I find that individuals primed with money are more persistent than control groups. Thus, in comparison to study 1 and 2, I am able to show that these effects emerge when a basic goal (task) is given, and when a higher order goal is also set. In the next study, I use a different task to show the robustness of these effects and to also determine more precisely if individuals primed with money are more concerned about attainability, versus time and effort spent working towards a goal.

#### **STUDY 4**

In study 4, I seek to replicate the effects found in the previous study. I employ a new task, a new self-relevant higher order goal (persistence), and also use a new priming manipulation (images of money). Importantly, in this study I begin to clarify whether individuals primed with money are deterred from certain tasks due to the decreased likelihood of performing well and failing to meet a goal, as opposed to the time and effort needed to invest in a task. The previous study could suggest, for instance, that individuals in the money condition persist less in the low attainability condition not because they are less certain they can reach the goal and are concerned about failure, but because they do not want to invest excessive time into any task. While past work does not suggest that money increases aversion to effort (Vohs et al. 2006), and while this would not explain the results of the high attainability condition, it is still important to rule out this possibility. Therefore, I manipulate attainability in this study by making the required work

equivalent in each condition (completing the same number of words) while making it less likely in one condition that the performance goal could be met. If individuals primed with money are motivated just by time spent, I would not expect differences to emerge between money and control groups based on attainability.

### Design and Procedure

Seventy-nine individuals ( $M_{age} = 35.19$ , 45.6% Female) participated in the study for nominal payment. Participants were randomly assigned to a 2 Prime (Money/Control) x 2 Attainability (High/Low) between subjects design. Participants were told it was a two part study. For the first study, individuals were told they would be completing customer behavior surveys where they would be asked to indicate what words they associated with different products. The priming manipulation consisted of images of money in the upper left hand corner of the screen; for the control group, images of geometric figures were used in line with previous work (see Hansen et al. 2012; images used available in the Appendix).

After completing the first study, individuals were told that they were now evaluating a task that they could complete at some point in the near future. Specifically, individuals were told that they would be evaluating a word fragment task, performance on which would be used to indicate their persistence (which was described as an important personal attribute). For this task individuals would be given several word fragments (e.g. “cur”) and then asked to complete words based on the fragments (e.g. “current”). For the high attainability condition, individuals were told that in order to perform well, they would need to build on at least 14 of the word fragments, and be able to generate at least 2 words for each fragment. For the low attainability condition, individuals were told that to perform well they had to build on fewer fragments (4), but generate more words (7) for each of those fragments. Thus, for either attainability condition

individuals had to generate the same number of words total (28) to perform well. Immediately after reading about the task, individuals were asked how motivated they would be to perform well on this task (1=not at all/11=very).

## Results and Discussion

*Pretest.* I conducted a pretest similar to the one conducted in study 3 to test whether individuals felt the goal in the high (low) attainability condition was more (less) attainable, and to also measure their perceptions of task length and importance of the higher order goal (persistence). 88 individuals ( $M_{age} = 21.28$ , Female = 61.4%) participated in the study for course credit. Participants were randomly assigned to a 2 Attainability (High/Low) between subjects design. All participants read the same task descriptions as those described above. Afterwards, individuals rated how attainable the performance goal was (1=not at all/11=very), as well as how long they thought the task would take (1=not long at all/11=very long). Individuals then indicated how important it was to them to be considered persistent (1=not at all/11=very). Results indicated that individuals in the high attainability condition rated their goal as more attainable ( $M_{high} = 8.00$  vs.  $M_{low} = 7.02$ ;  $F(1, 86) = 6.38, p = .01$ ), but no differences emerged for how long individuals anticipated the task would take ( $M_{high} = 5.88$  vs.  $M_{low} = 6.38$ ;  $F(1, 86) = 1.80, p = .18$ ). Finally, all participants indicated that being persistent was something that was important to them ( $M = 8.18$ ) and this was rated consistently higher than a median value of 6 ( $t(87) = 10.43, p < .001$ ); differences in importance did not vary based on goal attainability ( $M_{high} = 8.40$  vs.  $M_{low} = 8.00$ ;  $F(1, 86) = .86, p = .36$ ).

*Main Results.* A 2 prime (Money/Control) x 2 Attainability (High/Low) ANOVA was run with motivation to perform as the dependent variable. No main effects emerged. A significant

interaction was found ( $F(1, 75) = 9.03, p = .004$ ). As expected, in the high attainability condition, individuals expressed greater motivation to do well when primed with money ( $M_{\text{money}} = 8.86$  vs.  $M_{\text{control}} = 7.00$ ;  $F(1, 75) = 4.91, p = .03$ ), but in the low attainability condition, individuals in the money condition reported lower motivation ( $M_{\text{money}} = 7.48$  vs.  $M_{\text{control}} = 9.05$ ;  $F(1, 75) = 4.11, p = .05$ ).

*Discussion.* The results of this study replicate findings from the previous study with a new task and prime, and demonstrate again that money may not motivate action when individuals are confronted with a task where they may not perform well. However, when individuals are relatively secure that they can achieve a performance objective, motivation to perform well is significantly higher than control groups. Also, this study provides evidence that money does not demotivate one's willingness to spend time on a task per se, but rather may reduce motivation when there is a potential that a given goal will not be met, and success is less likely.

## V. PRIMING MONEY AND SELF-HANDICAPPING: CLARYIFYING MONEY'S MOTIVATING EFFECTS

### *Introduction to Self-handicapping Studies*

In studies 5 and 6, I seek to identify the process more clearly, and also reverse some of the previous effects as a way to test process explanations. As noted earlier, it is important to be specific about what needs activating money may make more pressing, since different explanations could arise. For instance, money could make individuals more focused on the ability to reach a goal (i.e. experience a reward), and be less likely to invest time if a positive outcome is not likely. Past research suggests that reminders of money lead individuals to consider how to best maximize the value of their actions (Liu and Aaker 2009), which may lead to a withdrawal when a reward may not be realized. According to Liu and Aaker, thoughts about money lead people to think about value in a non-ambiguous manner, and as such money could “activate a mind-set that focuses on maximal, quantifiable utility”. While I suggest here that feeling that one has an abundance of money makes people more focused on validating their abilities, this could be considered somewhat distinct from the focus on performance and rewards (see Grant and Dweck 2003). If one is focused on reward and performance, they are primarily concerned with a positive outcome. If one is focused on validating abilities, on the other hand, they are more concerned with preserving a sense of self-efficacy than achieving any specific outcome. From the past studies, we cannot determine whether individuals are less motivated because they feel cannot achieve a positive performance outcome, or because they feel they cannot preserve a sense of efficacy and want to protect themselves from the consequences of failure.

To test these possibilities, I include self-handicapping manipulations in the next two studies. Self-handicapping is the act of claiming or creating performance obstacles in order to influence the explanations given for subsequent outcomes (Berglas and Jones 1978). According to Berglas and Jones (1978), an individual is motivated to self-handicap out of a desire for self-protection. Thus individuals will risk poor performance in order to protect their own feelings of competence, and if they do not perform well, the handicap can then serve as a way to explain performance (rather than a lack of ability). By self-handicapping, the individual hopes to preserve the image of competence and self-worth in his/ her eyes (Berglas and Jones 1978; Tice and Baumeister 1990).

If priming individuals with money makes them concerned about protecting their sense of efficacy, we would expect that individuals primed with money will handicap more, relative to control groups, for less attainable goals. Previous research has shown that people tend to self-handicap more when validating one's abilities (vs. learning or mastery of tasks) is considered more important to them (Grant and Dweck 2003). In addition, handicapping is more likely when individuals feel successful but cannot identify the source of their competency (e.g. were told they did well previously on a test but are not given an option to see what they did to succeed; Harris and Snyder 1986). This could possibly explain what happens when people feel they have more monetary resources—they are given a sense of being successful without being given a reason that actually justifies any future success, and thus are more interested in sustaining that sense of efficacy. On the other hand, if money instead makes individuals interested in performing well, they should handicap less—they would be notably less concerned about making themselves look good and more focused on the outcome itself, and thus unlikely to do anything (e.g. handicap) that worsens their performance. Therefore, providing a choice to handicap here will allow for a

more precise test of whether priming money leads to concern for protecting oneself (vs. concern for reward and outcome) when given less attainable goals.

In addition, we can also rule out whether reward and cost/benefit considerations drive behavior by showing that in some cases those primed with money do persist longer than control groups, even when a goal is less likely to be achieved. This could occur if individuals primed with money are actually given a handicap. That is, one could expect that when those primed with money are given an external reason why they would not do very well on a task, they will be more motivated to persist for more difficult tasks, because they no longer need to focus attention on the impending performance, and the potential to “look bad” if they fail (Deppe and Harackiewicz 1996). If these predictions hold, it allows us to rule out the possibility that money makes people more focused on rewards and costs/benefits, since with a handicap, a person’s chances of doing well are actually reduced, which should lower motivation if concerns about rewards and using time are the main drivers.

## **STUDY 5**

In study 5, I present individuals with a new task (solve word search puzzles) and a new higher order goal (demonstrate problem solving abilities). However, in this task, rather than measure individuals’ motivation to perform, I measure their willingness to self-handicap (by measuring their willingness to forgo practice that would enhance their performance). In this way, I am able to test more specifically if individuals are willing to compromise performance (not do as well on the task) in order to preserve sense of efficacy. I would predict also that differences in handicapping tendencies between money and control conditions should emerge particularly for the low attainability condition (since chances for failure are higher).

## Design and Procedure

One hundred and twenty-three individuals ( $M_{\text{age}} = 36.38$ , 45.5% Female) were recruited from an online panel and participated in the study for nominal payment. Participants were randomly assigned to a 2 (Money/Control) x 2 (High/Low) between subjects design. Individuals first participated in the picture priming task described in study 4. After this, individuals were given a description of a word search task that they were told they may get the chance to take in the future. They were told that this task would measure whether they have exceptional problem solving abilities, and that such abilities are often used as predictors for future success in many areas of life. For the high (low) attainability condition, individuals were told that in order to do well on the task, they would need to find at least 9 (36) words in the 3 puzzles they would be asked to view.

Immediately after reading about the task, individuals were told that the experimenters in charge of the study were examining the impact of practice on scores. Specifically, they were told that in order to do well on the task, it was recommended that they practice briefly first, since practicing can enhance their score, and without practice their score would “not be an accurate reflection of their abilities”. However, since for the purpose of the experiment a certain number of people were needed to not practice, they were told the experimenters were looking to see who would be willing to be assigned to the no-practice group. Individuals indicated their willingness to be in this group (1=not willing at all/11=very willing). They were then told that they would have the option to sign up for this task at another time, and proceeded to demographic questions.

## Results and Discussion

*Pretest.* 60 participants ( $M_{\text{age}} = 30.03$ , 31.7% Female) were recruited for the study for nominal payment. All individuals read the same task description as above, from either the high or low attainability conditions. Results indicated that individuals in the high attainability condition rated the performance goal as more attainable ( $M_{\text{high}} = 7.32$  vs.  $M_{\text{low}} = 5.72$ ;  $F(1, 58) = 4.68$ ,  $p = .04$ ). Finally, all participants indicated that being good at problem solving was something that was important to them ( $M = 8.43$ ) and this was rated consistently higher than a median value of 6 ( $t(59) = 10.43$ ,  $p < .001$ ); differences in importance did not vary based on goal attainability ( $M_{\text{high}} = 8.46$  vs.  $M_{\text{low}} = 8.40$ ;  $F(1, 58) = .01$ ,  $p = .91$ ).

*Main results.* Given that ability to complete the given task could vary as a function of age, I used this as a covariate (removing this does not change the pattern of results). Willingness to self-handicap is analyzed via a 2 Prime (Money/Control) x 2 Attainability (High/Low) ANCOVA. While no main effects emerged, a significant interaction did emerge ( $F(1, 118) = 4.18$ ,  $p = .04$ ). For the high attainability condition, while those in the money condition rated themselves as less willing to join the no-practice group, this difference was not significant ( $M_{\text{money}} = 7.94$  vs.  $M_{\text{control}} = 8.62$ ;  $F(1, 118) = .97$ ,  $p = .33$ ). However, in the low attainability condition, those in the money condition were significantly more willing to join the no-practice group compared to the control group ( $M_{\text{money}} = 8.42$  vs.  $M_{\text{control}} = 6.90$ ;  $F(1, 118) = 3.70$ ,  $p = .06$ ).

*Discussion.* As predicted, individuals primed with money handicap more relative to control groups when faced with a less attainable goal, consistent with the idea that money leads individuals to want to protect a sense of efficacy, and thus be willing to risk performing worse to do so. In the next study, I measure actual behavior—persistence on a task—to determine if

individuals primed with money demonstrate increased motivation and persistence when allowed to self-handicap, while pursuing a less attainable goal.

## STUDY 6

In study 6, I use another handicapping manipulation, where half of the participants are told that they will not get a chance to practice before taking a task, making success less likely and making the results “not an accurate reflection of their abilities”. I also focus in this study on how the presence of handicaps affects pursuit of less attainable goals. If individuals primed with money are more motivated by rewards, I would expect less persistence in the handicap condition, since chances for doing well have been hampered with a handicap. Moreover, if individuals primed with money are concerned with time investment, they would likewise invest less effort than control groups regardless if they were given a handicap or not. If, however, money increases a need to validate abilities, I would expect increased persistence with a handicap, given concerns about appearing competent are removed (failure is no longer “their” fault). As such, this study allows us to more firmly rule out the possibility that individuals primed with money are more concerned with rewards and time considerations, as opposed to self-protection.

### Design and Procedure

One hundred and fifteen individuals ( $M_{\text{age}} = 20.93$ , 60.9% Female) took part in the study for course credit, and were randomly assigned to condition in a 2 Prime (Money/Control) x 2 Handicap (Present/Absent) between subjects design. The study followed the same prime and

method procedure as study 3. However, the low attainability condition alone was present—all participants were told they needed to complete 32 words to do well. In the handicap present condition, individuals were told that the study was looking at the effects of practice on performance. Individuals were told that in order for the test to be valid and measure their actual abilities, they needed to practice briefly before the test. However, too many people had been assigned to practice, and they were being asked to participate in the no-practice group. Participants were asked to indicate if they agreed to join the no-practice group (in line with procedures used in previous self-handicapping studies; Deppe and Harackiewicz 1996) and took the task. Individuals in the no-handicap condition were not given any additional instructions and proceeded to the task as in study 3. Time spent on task was measured and used as the main dependent variable.

## Results and Discussion

Seven participants failed manipulation checks testing their attention to the task; 4 participants reported issues that inhibited performance (e.g. dyslexia) and were also removed (removing these participants does not affect pattern of results). Time spent on task (in seconds) was analyzed via a 2 Prime (Money/Control) x 2 Handicap (Present/Absent) ANOVA. While no main effects emerged, a significant interaction did emerge ( $F(1,100) = 7.40, p = .008$ ). As expected, for the no handicap condition, individuals in the control group spent more time on the task compared to the money condition, consistent with past results ( $M_{\text{money}} = 183.32$  vs.  $M_{\text{control}} = 278.59; F(1,100) = 3.83, p = .05$ ). However, in the handicap present condition, those in the money condition spent longer on the task compared to the control condition ( $M_{\text{money}} = 263.77$  vs.  $M_{\text{control}} = 168.49; F(1,100) = 3.58, p = .06$ ).

*Discussion.* In this study, when given a handicap, individuals primed with money persist longer towards less attainable goals than control groups, providing more conclusive evidence that priming money does not necessarily drive this behavior due to concerns about rewards, or costs/ benefits of time use. Also, given previous research shows that high (vs. low) self-handicappers tend to become more interested in tasks when given a handicap (Deppe and Harackiewicz 1996), these findings are consistent with the idea that money makes people concerned with protecting their sense of self-efficacy. Thus, not only may money reminders lead individuals to handicap more, but consistent with theory on self-handicapping, they actually perform better when an external reason for performing below a goal is present. Consistent with the results from study 5, these findings indicate that those primed with money are more motivated when able to maintain their sense of efficacy (having responsibility for failure removed), rather than when they were likely to receive a reward (i.e. improve performance on task).

## VI. PRIMING MONEY: RELEVANCE FOR CONSUMER CHOICE

### *Introduction to Consumer Studies*

In this final section, I show the relevance of these findings in consumption contexts, and demonstrate the effects established in previous studies hold when individuals evaluate products. Past work has shown that individuals often associate increased effort with the usefulness of products a consumption context (Labroo and Kim 2008), and so, consistent with previous findings, those in the control group should show more interest in products and services when used to achieve a less attainable goal, when the use of a product is in service of a self-relevant higher order goal (e.g. showing one has strong capabilities, getting in shape). In contrast, relative to control groups, I expect that individuals primed with money will show less interest in products and services when they could be used to achieve a less attainable goal. Specifically, if individuals are asked to use a product to meet a self-relevant goal (e.g. using a tablet for success in school, use an exercise program for getting in shape), I predict that those primed with money will become less interested in products when it appears difficult to realize a goal. As such, these studies show that in certain cases priming money not only lowers motivation, but reduces interest in products. Thus, I am able to show in these studies the downstream consequences that money reminders can have on consumer behavior, and these findings can suggest that money reminders (for instance, how money is depicted in advertisements) could have significant implications for buyer behavior. Finally, in study 8, I measure process again and rule out additional alternative explanations for these findings with other measures.

## STUDY 7

In study 7, I examine a specific consumption context, designate the product (tablet) and allow individuals to choose the goal (select a class where doing well is important to individuals, and where doing well would reflect highly on their capabilities). Consistent with the past studies, I expect that individuals primed with money will subsequently be less willing to use products (be less willing to pay, as measured here) compared to control groups, when they will use that product towards a less attainable goal. In addition, I expect those in the money condition will be more willing to use products (willing to pay) compared to control groups, when thinking about using the same product for an easier to attain goal.

### Design and Procedure

One hundred and fifty-five undergraduate students ( $M_{\text{age}} = 21.34$ , 54.2% Female) took part in the study for course credit. Participants were randomly assigned to a 2 Prime (Money/Control) x 2 Attainability (High/Low) between subjects design. Individuals first took part in the image priming manipulation used in study 4. They were then told that we wanted their opinions about the use of tablet products for classes. In the high (low) attainability conditions, they were told that they should think of an important class where doing well would reflect highly on them and their abilities, but also a class where they are more likely (less likely) to do well and earn a very good grade. After listing the class, individuals were asked to indicate how much they would be willing to pay for a tablet (in dollars), which was used as the main dependent variable.

### Results and Discussion

*Manipulation checks.* I measured feelings of goal attainability, that is, perception of whether getting a good grade in their class was an attainable goal (1=not attainable at all/11=very

attainable) and how important it was to them to get a good grade in the selected class (1=not important at all/11=very important). Results indicated that individuals in the high attainability condition felt getting a good grade in the selected class was a more attainable goal ( $M_{\text{high}} = 9.83$  vs.  $M_{\text{low}} = 8.56$ ;  $F(1, 151) = 21.94, p < .001$ ). All participants indicated that getting a good grade in the selected class was important to them ( $M = 9.64$ ) and this was rated consistently higher than a median value of 6 ( $t(154) = 25.94, p < .001$ ); differences in importance did not vary based on goal attainability ( $M_{\text{high}} = 9.80$  vs.  $M_{\text{low}} = 9.49$ ;  $F(1, 151) = 1.17, p = .28$ ). No other effects emerged.

*Main results.* Willingness to pay was analyzed via a 2 Prime (Control/Money) x 2 Attainability (High/Low) ANOVA. No main effects emerged, but a 2 way interaction was found ( $F(1, 151) = 7.92, p = .006$ ). In the high attainability condition, individuals in the money condition indicated higher willingness to pay compared to the control group ( $M_{\text{money}} = \$253.75$  vs.  $M_{\text{control}} = \$156.12$ ;  $F(1, 151) = 3.83, p = .05$ ). However, in the low attainability condition, individuals in the money condition were less willing to pay compared to the control group ( $M_{\text{money}} = \$202.91$  vs.  $M_{\text{control}} = \$304.57$ ;  $F(1, 151) = 4.09, p = .05$ ).

*Discussion.* In this study, I am able to show that when using a product to achieve a more (vs. less) attainable goal, individuals primed with money are willing to pay more (less) for a product, compared to control groups. Thus, with this study, I show priming money not only affects willingness to persist in tasks, but also affects how products to achieve more (vs. less) attainable goals are valued. In the next study I replicate these effects using a new context. I will also measure feelings of efficacy to determine if, similar to past studies, these are affected when individuals primed with money face a less attainable goal.

## STUDY 8

In this study, I examine if these effects hold in another consumer context, using a new goal and attainability manipulation, while also measuring process. In this study, a higher order goal (being in better shape) is specified. However, attainability of the basic goal is set in this study. Specifically, I examine if individuals are more willing to buy a product (exercise program) when the difficulty associated with achieving a goal set by the program varies (e.g. requires one to exercise 3 vs. 7 times a week). I also measure process variables in this study to show what drives the differences in willingness to buy between money and control groups when attainability is low. Consistent with previous studies, I predict that feelings of efficacy should be lower for the money condition relative to the control condition when the goal is less attainable. Finally, I include additional measures to determine if money makes individuals more willing to buy products for other reasons, to rule out any additional alternative explanations for these findings.

### Design and Procedure

One hundred and eleven participants ( $M_{age} = 21.01$ , 47.7% Female) from a public university took part in the study for course credit. Participants were randomly assigned to a 2 Prime (Money/Control) x 2 Attainability (High/Low) between subjects design. Individuals were told they would take part in 2 separate studies. Individuals first took part in the same image priming manipulation described in Study 4. In the second study, they were told that they would be evaluating an exercise program. They were given a brief description of the exercise program, which included information on videos, exercises, and a tracking system used to monitor progress. For the attainability manipulation, individuals were told that the program was designed in a specific way so that those using it would “look and feel their best”. For the high attainability

condition, they were told that the program recommended they do at least 3 (30 minutes) workouts, while in the low attainability condition they were told they needed to do 7 (30 minute) workouts a week.

Immediately after viewing the description, individuals were asked how willing they would be to buy the program (1= not willing at all/11 very willing). Individuals were then asked to rate their agreement with the following statements to measure perceptions of efficacy: Using this exercise program would make me feel that that I could take ownership over my fitness goals; I feel that using this exercise program makes me feel I could get in shape on my own (1=strongly disagree/11=strongly agree;  $\alpha = .92$ ). In addition, I include other process variables aimed at ruling out alternative explanations. Specifically, I measure importance of achieving goal (desire for reward) by asking individuals how important it would be for them to exceed the given workout goal (1=not at all/11=very). To measure whether competitive norms are activated with money, I asked how important it would be for them to perform better than most people using this exercise program (1=not at all/11=very). To measure if primes or goal attainability information affects intrinsic motivation, I asked individuals how much they would enjoy using this exercise program (1=not enjoy at all/11=enjoy very much). Finally, individuals then listed how often they thought they should exercise a week for at least 30 minutes and how often they did exercise a week for 30 minutes (open-ended).

## Results and Discussion

*Manipulation checks.* Following the test, individuals were asked about the advertisement in order to test whether individuals paid attention to the task. Seven individuals who missed these manipulation checks and could not recall key details were removed from subsequent analyses. Individuals were asked how difficult it would be to reach the workout goal, and how important it

was for them to be in good shape. Those in the high attainability condition rated the workout goal listed as less difficult to achieve ( $M_{\text{high}} = 6.42$  vs.  $M_{\text{low}} = 7.97$ ;  $F(1, 100) = 12.64$ ,  $p = .001$ ). All participants indicated that being in good shape was important to them ( $M = 9.64$ ) and this was rated consistently higher than a median value of 6 ( $t(103) = 12.17$ ,  $p < .001$ ); differences in importance did not vary based on attainability condition ( $M_{\text{high}} = 8.53$  vs.  $M_{\text{low}} = 8.54$ ;  $F(1, 100) = 0$ ,  $p = .98$ ). No other effects emerged.

*Main Results.* Willingness to buy was analyzed via a 2 Prime (Money/Control) x 2 Attainability (High/Low) ANCOVA with number of times individuals felt they should exercise and how often they do exercise used as covariates (removing covariates does not affect significance). No main effects emerged. A 2 way interaction was found ( $F(1, 98) = 8.19$ ,  $p = .005$ ). In the high attainability condition, individuals in the money condition expressed more willingness to buy the exercise program compared to the control group ( $M_{\text{money}} = 6.31$  vs.  $M_{\text{control}} = 4.67$ ;  $F(1, 98) = 4.31$ ,  $p = .04$ ). In the low attainability condition, individuals in the money condition were marginally less willing to buy the exercise program ( $M_{\text{money}} = 5.33$  vs.  $M_{\text{control}} = 6.67$ ;  $F(1, 98) = 3.77$ ,  $p = .06$ ).

Efficacy perceptions were analyzed via a 2 Prime (Control/Money) x 2 Attainability (High/Low) ANCOVA. While no main effects were found, a 2 way interaction emerged ( $F(1, 98) = 5.33$ ,  $p = .02$ ). In the high attainability condition, no differences emerged in terms of feelings of efficacy ( $M_{\text{money}} = 7.28$  vs.  $M_{\text{control}} = 7.00$ ;  $F(1, 98) = .59$ ,  $p = .45$ ). In the low attainability condition, individuals in the money condition had lower efficacy perceptions relative to the control group ( $M_{\text{money}} = 6.50$  vs.  $M_{\text{control}} = 7.52$ ;  $F(1, 98) = 5.95$ ,  $p = .02$ ). However, no interactions (or main effects) emerged for importance of exceeding goal ( $F(1, 98) = .01$ ,  $p$

=.93), importance of doing better than others ( $F(1, 98) = .02, p = .89$ ), or enjoyment of exercise program ( $F(1, 98) = 1.73, p = .19$ ).

I predicted moderated mediation (model 2, Preacher, Rucker, and Hayes 2007), wherein attainability moderates the effect of prime on efficacy which in turn influence willingness to buy. The indirect effect of prime on willingness to buy (prime  $\rightarrow$  efficacy  $\rightarrow$  willing to buy) was significant for low attainability (-.901, the 95% bootstrap CI = -1.8293 to -.1528), but it was attenuated for high attainability (.2447, the 95% bootstrap CI = -.6775 to 1.1439).

*Discussion.* In this study, I find again that money primes affect willingness to buy products, using a new context and a new attainability manipulation. In addition, in this study I show for those primed with money feelings of efficacy do decrease when individuals are confronted with a less attainable goal, and that this reduced sense of efficacy thus decreases interest in buying a given product. In addition, I include measures related to performance outcomes (importance of exceeding goals and doing better than others) as well as expected enjoyment of program, and find that these are not affected by the prime or attainability manipulations. Thus, this study provides more conclusive evidence that when primed with money, individuals are more concerned about their own feelings of efficacy when given a less attainable goal (vs. concerns about outcomes and performance), and that this drives these effects.

## VII. GENERAL DISCUSSION

In this dissertation, I show that priming concepts of money leads individuals to pursue self-related goals to a greater degree than control groups, but *only* when a goal appears attainable. In contrast, when goal attainment is less certain, those primed with money are less likely to pursue personal goals relative to control groups. I show that this pattern occurs because individuals primed with money are concerned primarily with validating their abilities, leading them to enhance performance when success is guaranteed, but withdraw effort when success is less certain. These findings suggest that, contrary to previous thought, money does not lead to a sense that one can achieve any goal on their own, but rather creates a need to preserve efficacy. I provide evidence for this process explanation by showing that individuals primed with money feel a decreased sense of efficacy when faced with less attainable goals. I show further evidence for this explanation by including self-handicapping manipulations, which likewise confirm that the need to protect one's sense of efficacy drives these effects. Finally, I present relevant marketing implications and demonstrate how reminders of money and the inclusion of goal relevant information can affect interest in and willingness to buy products.

In this research, I have focused on how money and wealth reminders affect motivation to pursue personal goals, in contrast to previous work examining how money and wealth reminders influence the choice between personal versus social goals. Thus, this work builds on past findings, and by studying effects of money in a more specific context, allows for a more precise examination of its impact on behavior. In addition to varying attainability, I focus only on cases when individuals are looking to pursue important higher order goals, in order to make more specific predictions about how those primed with money would react compared to control

groups. In many ways, the findings are consistent with past work, showing that money does have a motivating power, but reveals there is a boundary to this effect. Moreover, I clarify why money drives motivation to act in regards to personal goals. Previous work in the psychology of money has hinted at possible reasons this resource affects motivation, but here I am able to show more conclusively what the specific drivers are.

Thus, an important contribution of this work is specifying how money affects motivation, and in this case the more specific needs and goal mindset that activating money may elicit. As such this work helps bridge the gap between research on the psychology of money with that of goal directed behavior and achievement motivation. Connecting the literature on money with work on motivation is not only helpful in understanding the ways in which money drives behaviors, but also can enrich future research and open more contexts to explore the effects of money on motivation. For instance, how does priming individuals with money affect their responses to failure, positive or negative feedback, or pursuit of goals after a failure? Thus, many additional research enquiries could be made possible through this initial work.

The findings from this research could also be used to extend past findings related to the psychology of money—in particular, to explain why individuals seem indifferent to the needs of others when given money reminders. For one, if priming thoughts about money makes people more concerned about themselves because it creates a need to validate abilities, they may see interactions with others as less helpful to this end. Thus, future research may explore whether exposure to money primes may lead individuals to help others, when doing so in some way reflects positively on them and their own competencies. Another factor that proves relevant to these findings would be goal importance. While I do not manipulate importance of goals in these studies, it is likely based on the theorizing here that this does have an effect on results, and it is

possible to predict that those primed with money may be more motivated if the less attainable goal is not important (that is, if a goal is not that personally important, they may feel a failure would not reflect on them as much). Given that goal importance and attainability were not manipulated in previous work on the psychology of money, it is possible to interpret past results in a somewhat different lens given the current findings.

Another intriguing area for research would be to consider additional situations where feeling one has money would not necessarily lead to more positive outcomes for individuals. It is relevant to note that this work is among the first to show a negative connection between having money and willingness to pursue personal goals. If self-protection is a concern made salient by having money, this could lead to many less desirable consequences—for instance, there are many cases where self-handicapping could lead to negative consequences despite the fact that those engaging in this behavior feel they protect themselves and “look good” short term. While most work in this realm has pointed to the desirable effects of having money, and the less desirable effects of not having money (Shah, Mullainathan, and Shafir 2012), it may be time to examine more closely if money does indeed serve the best interests of those who have it.

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TABLE 1 – SUMMARY OF ALL MAIN STUDY RESULTS

Study	Dependent Variable	Condition	Means	p value (interaction)	p value (contrasts)
Study 1	Attainable	Control	9.10	$p = .04$	$p = .02$
		Money Wealth	9.97		n/a
		Money Spend	9.16		$p = .008$
		Money Budget	9.41		$p = .06$
Study 2	Likely to pursue goal (1-11)	Money	4.38	$p = .02$	n/a
		Control	6.55		
	Efficacy (1-11)	Money	5.16	$p = .004$	n/a
		Control	7.29		
Study 3	Performance toward goal (Number completed - Set Goal)	Money High Attain	7.69	$p = .003$	$p = .05$
		Control High Attain	3.32		
		Money Low Attain	-17.59		$p = .03$
		Control Low Attain	-10.19		
Study 4	Motivation to Perform (scale 1-11)	Money High Attain	8.86	$p = .004$	$p = .03$
		Control High Attain	7.00		
		Money Low Attain	7.48		$p = .05$
		Control Low Attain	9.05		
Study 5	Willing to Handicap (1-11)	Money High Attain	7.94	$p = .04$	$p = .33$
		Control High Attain	8.62		
		Money Low Attain	8.42		$p = .05$
		Control Low Attain	6.90		
Study 6	Time Spent (in seconds)	Money No Handicap	183.32	$p = .008$	$p = .05$
		Control No Handicap	278.59		
		Money Handicap	263.77		$p = .06$
		Control Handicap	168.49		

Study	Dependent Variable	Condition	Means	p value (interaction)	p value (contrasts)
Study 7	Willingness to Pay (\$)	Money High Attain	253.75	$p = .006$	$p = .05$
		Control High Attain	156.12		$p = .05$
		Money Low Attain	202.91		
		Control Low Attain	304.57		
Study 8	Willingness to Buy (1-11)	Money High Attain	6.31	$p = .005$	$p = .04$
		Control High Attain	4.67		$p = .06$
		Money Low Attain	5.33		
		Control Low Attain	6.67		
	Efficacy (1-11)	Money High Attain	7.28	$p = .02$	$p = .45$
		Control High Attain	7.00		$p = .02$
		Money Low Attain	6.50		
		Control Low Attain	7.52		

TABLE 2 – MEDIATION RESULTS FROM STUDY 2

<i>IV to Mediators (a paths)</i>		B	T
Efficacy		-2.14	-3.02**
<i>Direct Effects of Mediators to DVs (b paths)</i>		B	T
Efficacy		0.94	8.17**
Mediator	Indirect Effect	95% Confidence Interval	
Efficacy	-2.00	(-3.26, -.67)	

NOTE: Number of bootstrap resamples = 5000. Regression coefficients are unstandardized; \*\* p <.01

TABLE 3 – MEDIATION RESULTS FROM STUDY 8

IV: Prime; DV: Willing to Buy; Mediator: Efficacy; Moderator: Attainability					
<i>Independent Variable</i>		<i>Dependent Variable</i>			
		Efficacy		Willing to Buy	
	<i>Model 1</i>	B	T	B	T
Prime		0.28	0.57		
Attainability		0.52	1.08		
Interaction		-1.29	-1.87*		
<i>Model 2</i>				B	T
Efficacy				0.89	6.88**
Prime				1.40	2.25**
Attainability				1.54	2.49**
Conditional indirect effects of attainability on overall willingness to buy by prime:					
Mediator	Moderator	Indirect Effect		95% Confidence Interval	
Efficacy	Low Attainability	-0.90		(-1.8293, -.1528)	
Efficacy	High Attainability	0.24		(-.6775, 1.1439)	

NOTE: Number of bootstrap resamples = 5000. \*p = .06; \*\* p <.05

FIGURE 1:

SELECTED GOAL ATTAINABILITY RATINGS BY PRIME TYPE – STUDY 1

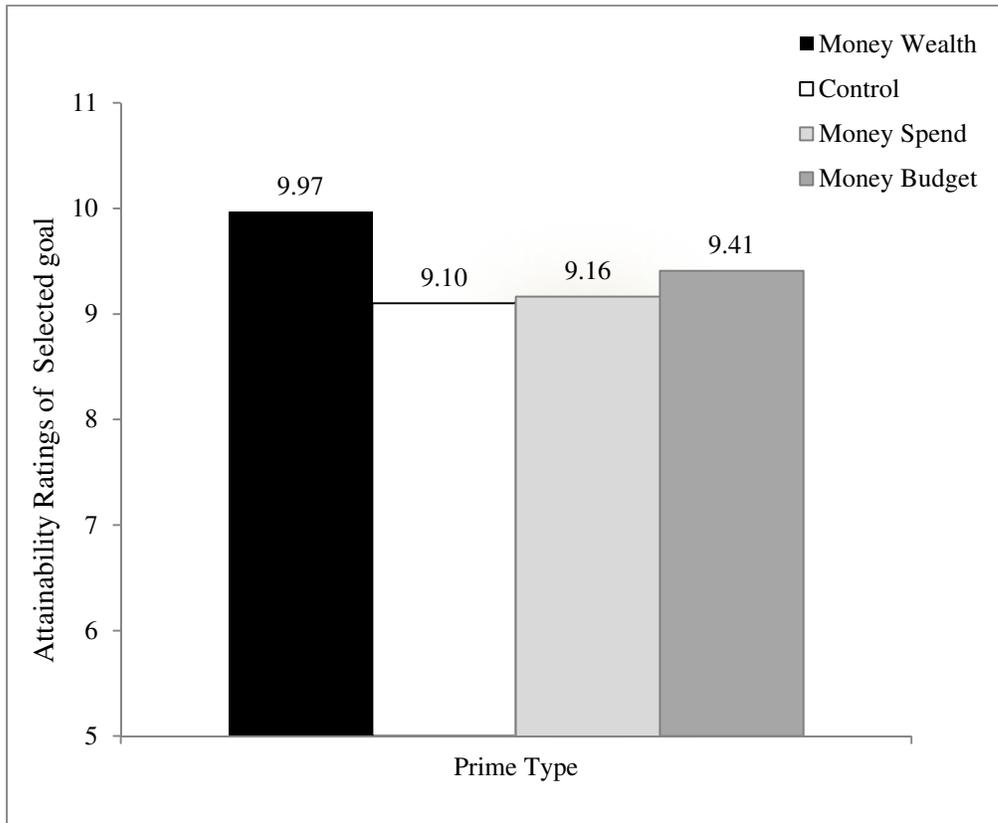


FIGURE 2:

LIKELIHOOD OF GOAL PURSUIT BY PRIME CONDITION – STUDY 2

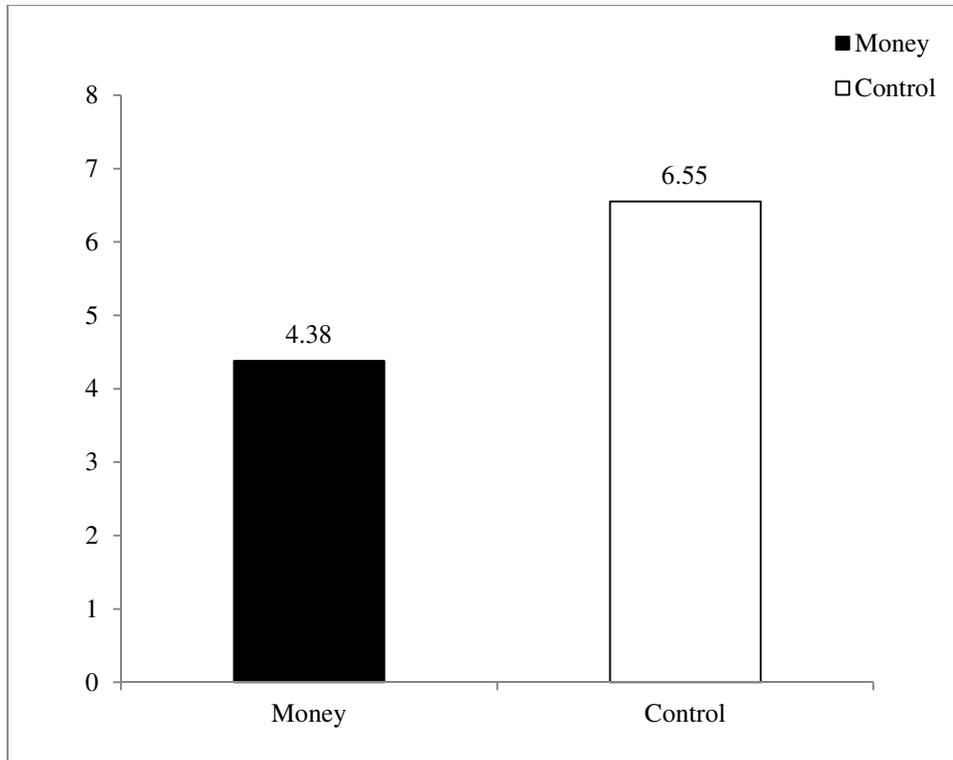


FIGURE 3:

PERFORMANCE TOWARDS SET GOAL BY PRIME CONDITION AND ATTAINABILITY –

STUDY 3

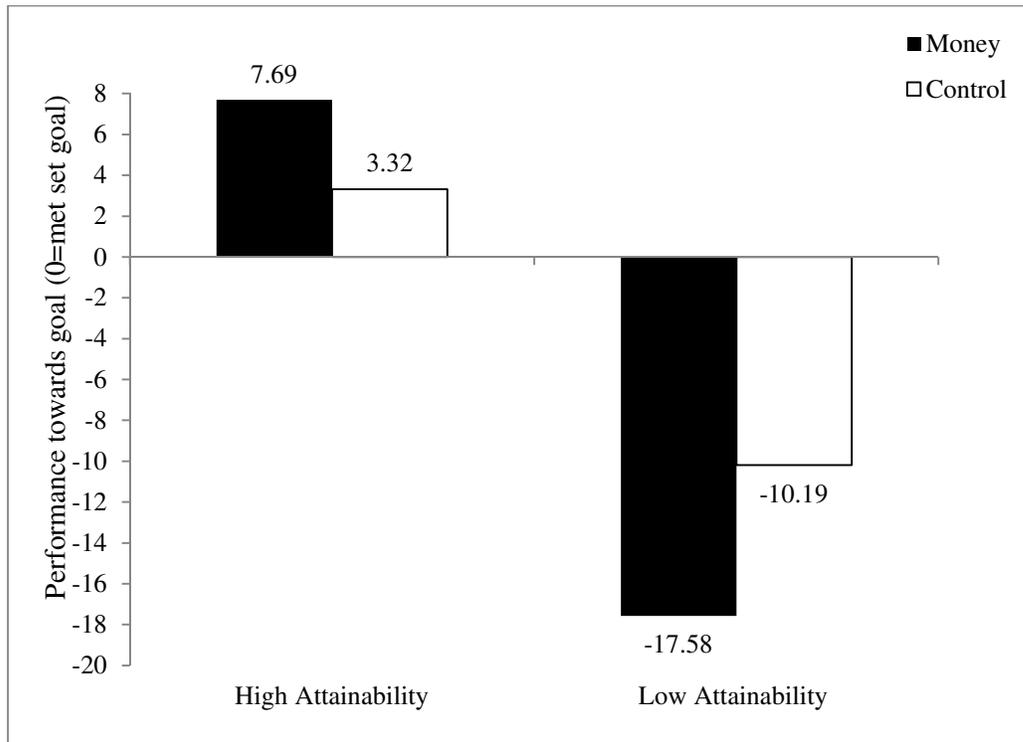


FIGURE 4:

MOTIVATION TO PERFORM WELL BY PRIME CONDITION AND ATTAINABILITY –

STUDY 4

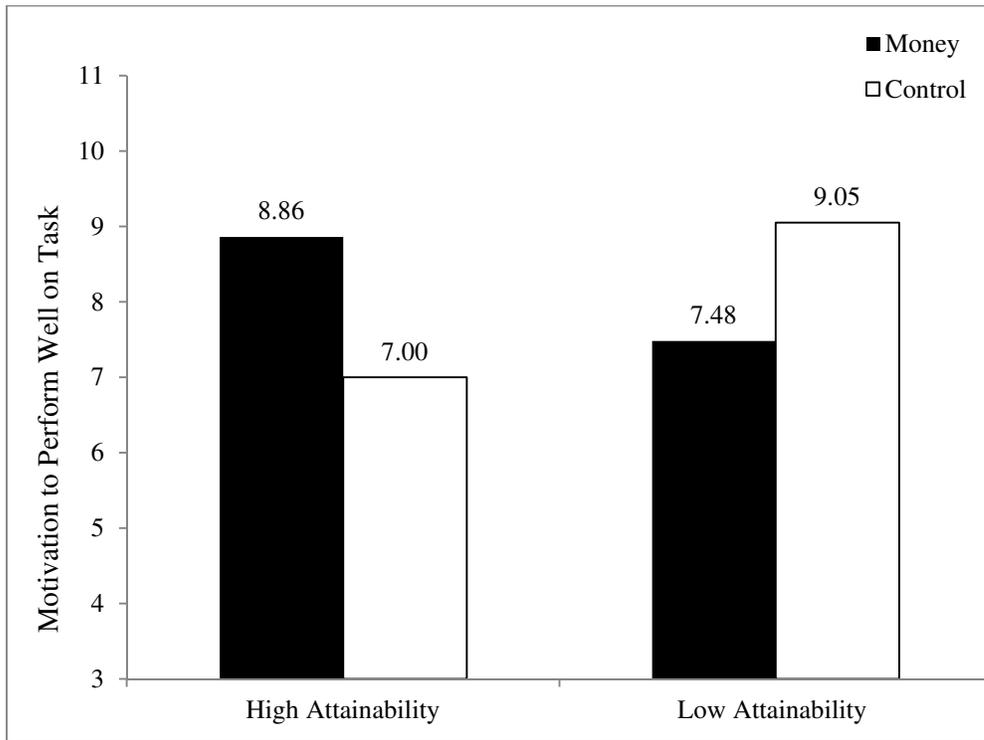


FIGURE 5:

WILLINGNESS TO HANDICAP BY PRIME CONDITION AND ATTAINABILITY – STUDY 5

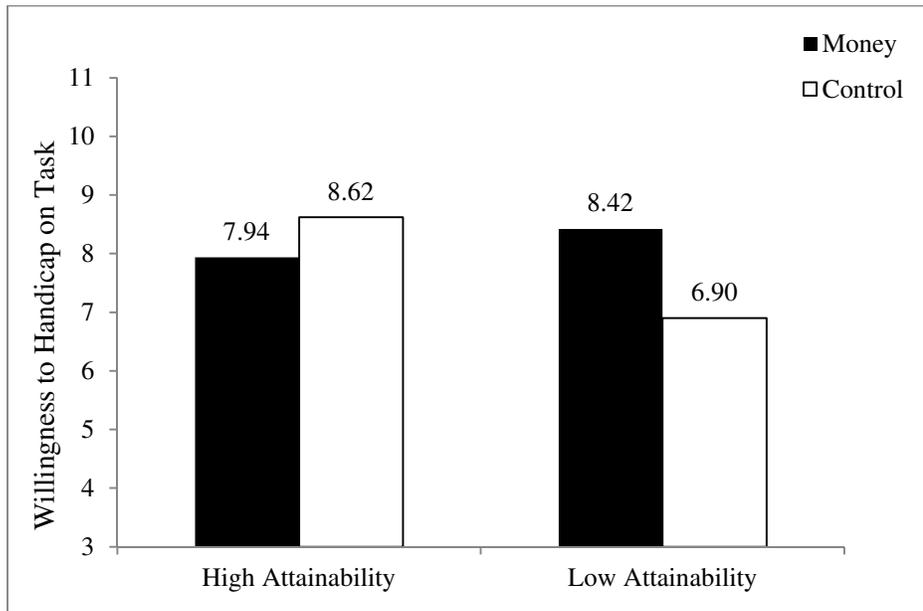


FIGURE 6:

TIME SPENT ON TASK BY PRIME CONDITION AND HANDICAP PRESENCE – STUDY 6

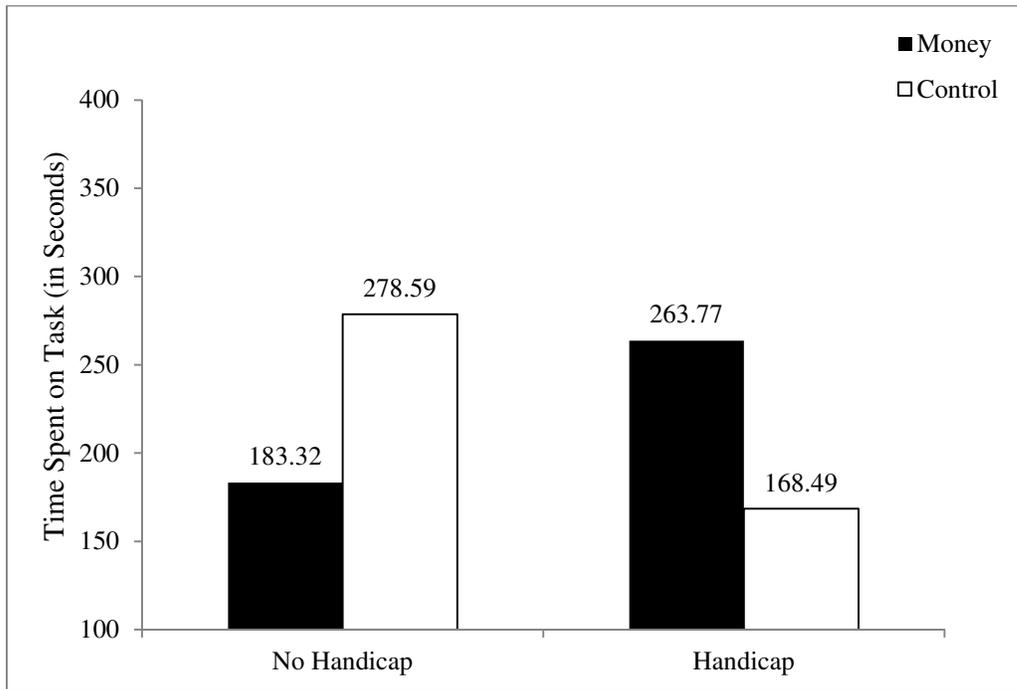


FIGURE 7:

WILLINGNESS TO PAY FOR TABLET BY PRIME AND ATTAINABILITY – STUDY 7

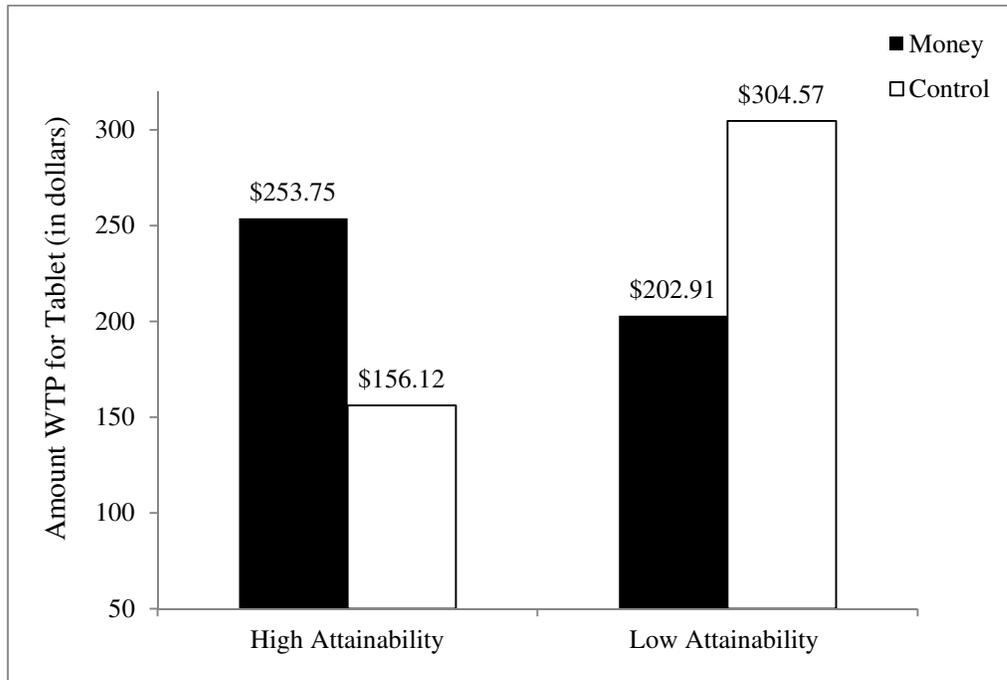
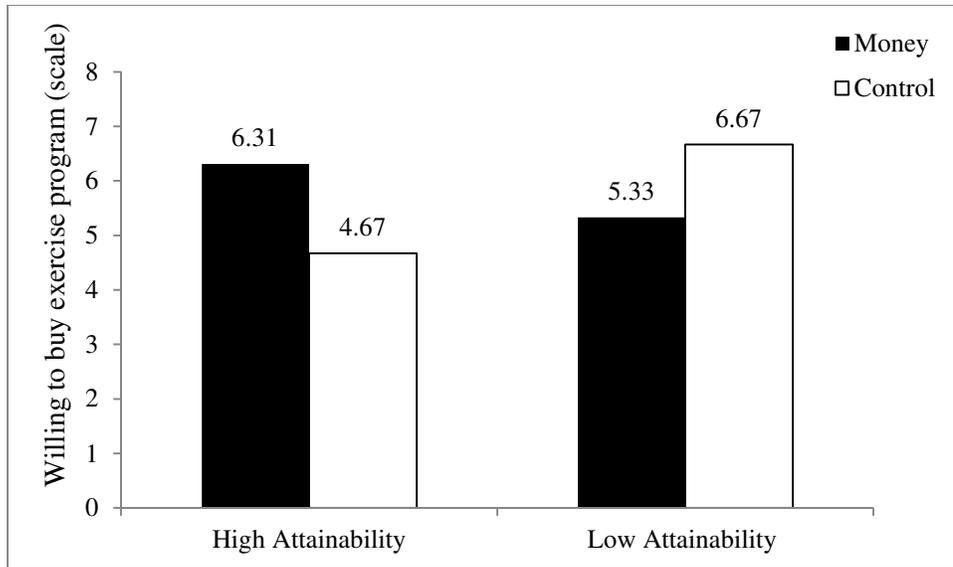


FIGURE 8:

WILLINGNESS TO BUY PROGRAM BY PRIME AND ATTAINABILITY – STUDY 8



## APPENDIX A:

### PRIMES USED IN STUDY 1

#### **FIRST SCREEN**

Thank you for participating. You will take part in 2 brief studies. In the first part, you will be participating in a sentence construction task. Click on the next page to begin.

#### **NEXT SCREEN**

In this task, we are looking to test how people construct meaningful English sentences. You will be given several word sets. In each set, you will be given a set a 4 words in random order, and you will need to make a sentence using 3 of the words. For each set, write down the first sentence that comes to mind, using just 3 of the words given. You will only have a short amount of time to complete all the sentences, so work as quickly as possible. Click on the next page to begin.

#### **NEXT SCREEN**

*For each set of 4 words, you will need to make a sentence using 3 of the words. For each set of 4 words, write down the first sentence that comes to mind, using just 3 of the words given.*

[For IRB: individuals will view and unscramble 9 sentence sets with Prime condition, in addition to 9 filler sentences. All sentences will be displayed in random order].

#### **Prime 1: Money Spend**

location money changes hands.

some spend himself dollars.

the hit ATM town.

cash chips now in.

check cut the logs.

pick up bill lunch

currency the exchange dress.

only this use credit.

Goods their purchase service

### **Prime 2: Money Wealth**

millions he they made.

the money secure tower.

fields in rolling dough.

the jackpot town hit.

rich here get now.

tree plant money fruit

hand cash in bank.

dollars points earn extra.

become wealthy we tall.

### **Prime 3: Money Budget**

budget step watch the.

heat debt lower their.

for deals search necklace.

belt one`s his tighten.

it cash safe keep.

we frugal tall are.

together rub pennies hands.

funds worry about rain.

pictures finances down keep.

## **CONTROL**

the city wander streets.

for sun hope clouds.

wait them for me.

late she went early.

hills walk up steps.

before someone came here.

their call manager friend.

the house clean kitchen.

Run machine the computer.

## **[Filler Sentences used in all conditions]**

found my notebook hide.

trunk the close door.

first eat good something.

geese twenty flew birds.

went people I swimming.

white is smooth paper.

perfume flower smell this.

A seat have chair

tree curtain the fell

## APPENDIX B:

### PRIME USED IN STUDY 2

#### FIRST SCREEN

Thank you for participating. You will take part in 2 brief studies. In the first part, you will be participating in a sentence construction task. Click on the next page to begin.

#### NEXT SCREEN

In this task, we are looking to test how people construct meaningful English sentences. You will be given several word sets. In each set, you will be given a set of 4 words in random order, and you will need to make a sentence using 3 of the words. For each set, write down the first sentence that comes to mind, using just 3 of the words given. You will only have a short amount of time to complete all the sentences, so work as quickly as possible. Click on the next page to begin.

#### NEXT SCREEN

*For each set of 4 words, you will need to make a sentence using 3 of the words. For each set of 4 words, write down the first sentence that comes to mind, using just 3 of the words given*

[For IRB: individuals will view and unscramble 9 sentence sets with Prime condition, in addition to 9 filler sentences. All sentences will be displayed in random order].

#### Money Wealth Prime

millions he they made.

the money secure tower.

fields in rolling dough.

the jackpot town hit.

rich here get now.

tree plant money fruit

hand cash in bank.

dollars points earn extra.

become wealthy we tall.

## **CONTROL**

made houses he they.

the deck secure tower.

fields in rolling snow.

the lights town hit.

someone here get now.

trees early plant fruit.

hand lesson in papers.

space points get extra.

become friends we tall.

## **[Filler Sentences used in both conditions]**

found my notebook hide.

trunk the close door.

first eat good something.

geese twenty flew birds.

went people I swimming.

white is smooth paper.

perfume flower smell this.

A seat have chair.

tree curtain the fell.

## APPENDIX C:

### PRIME USED IN STUDY 4

#### FIRST SCREEN

Thank you for your participation. You will be taking part in 2 studies. Please click on the button below to begin.

#### NEXT SCREEN

[For money condition: individuals will view a picture of money at the top of each page; for control condition, individuals will view a picture of geometric figures]



**Customer behavior study**



**Customer behavior study**

We are interested in testing associations individuals can make with different consumer products. Below you will find a list of products. Following each product, you will see a set of 3 words that could be associated with that product. In the space below each set, type one word from the set that you LEAST associate with that product. You will go on to complete more on the next 3 pages.

[note that the task will be divided so participants will see 4 screens total]

**Book:** library drive hardback

**Sheets:** bed cotton clean

**Bird cage:** food strong shelter

**Jacket:** rain color sturdy

**Milk:** breakfast filling enjoy yogurt

**Car:** safety sedan agile

**Shaving cream:** liquid soapy mild

**Toaster oven:** fast small convenient

**Magazine:** useful fun news read

**Tea:** morning hot relax

**Music album:** show car internet

**Bicycle:** weights aerobics machine

**Sneakers:** boots weather box

**Toothpaste:** floss mint toothbrush green

**Laptop:** fix portable software

**Pen:** ink fountain black

**Desk:** solid wood standing

**Dvd:** player cd television

APPENDIX D:  
MATERIALS AND MEASURES – STUDY 1

**[Prime procedure – See Appendix A]**

**NEXT SCREEN**

You are now finished the first study. Click on the next page to begin the second study.

**NEXT SCREEN**

In this study we are interested in learning about people's goals.

List one goal you have below (list only one):

**NEXT SCREEN**

**[order of next 2 questions randomized]**

*Please answer the following questions:*

How important is the goal you listed to you? (not important at all/very important)

**NEXT SCREEN**

How attainable is the goal you listed? (not attainable at all/very attainable)

**NEXT SCREEN**

*Please answer the questions below:*

Please indicate how difficult the sentence task (in the first study) was (not at all/very difficult)

**NEXT SCREEN**

What did you think was the purpose of these studies?

**NEXT SCREEN**

Please indicate your proficiency in English (native tongue, very proficient, somewhat proficient)

**NEXT SCREEN**

Age:

Gender:

APPENDIX E:  
MATERIALS AND MEASURES – STUDY 2

**[Prime procedure – See Appendix B]**

**NEXT SCREEN**

You are now finished the first study. In the next study, we are interested in learning about people's goals. Click on the next page to begin the second study.

**NEXT SCREEN**

Think of a goal that you could set. While it would be a goal that if achieved would show that one has very strong capabilities and/or reflect highly on oneself, it would also be a goal that would be **not** very attainable—that is, it should be difficult to achieve and have a higher potential for failure.

Please list this goal below:

**NEXT SCREEN**

How likely are you to pursue the goal you listed?

**NEXT SCREEN**

*Indicate how much you agree with the following statements when thinking about the goal you originally listed (strongly disagree/strongly agree):*

I feel I could do well on working towards this goal on my own.

I feel that I could take ownership of this goal.

**NEXT SCREEN**

*Please indicate how you are feeling at the current moment (not at all/very):*

Excited

Enthusiastic

Happy

Forceful

Domineering

Dominant

**NEXT SCREEN**

Age:

Gender:

APPENDIX F:  
MATERIALS AND MEASURES – STUDY 3

**[Prime procedure – See Appendix B]**

**NEXT SCREEN**

You are now finished the first study. Click on the next page to begin the second study.

**NEXT SCREEN**

In this study, you would be presented with a word scramble task. Performance on this task is often used as a measure of intelligence.

You would be presented with a number of words that are scrambled, and you would need to unscramble each word. See below for an example:

OORD - unscramble to create the word DOOR

We will give you a number of these to see how many you can complete in a few minutes. (Note that you will be given options to skip words, or end the task on your own).

To do well on this task, you need to correctly unscramble **at least [8/32]** of the available word scrambles.

Click on the next page to begin.

**NEXT SCREEN**

You will start the task immediately following this page. You can try to complete as many word scrambles as you can (it should take a few minutes to complete them all).

## **NEXT SCREEN**

[Note one word will appear on each page (a total of 33 words can be solved). After completing each word individuals will get a chance to go the next or quit]

1. NDWI
2. LAMSL
3. AOEGRN
4. REFNGI
5. SUMOE
6. HICAR
7. CENIMAH
8. OTAB
9. ZEESEN
10. EGRTI
11. ODSA
12. OOTMTA
13. LAWL
14. PELES
15. OATOPT
16. RAYLE
17. THISR
18. LNSIET
19. ITLUSONSO
20. BEVEMNOR
21. KEBI
22. ITH
23. KSPEA
24. RFTEUU
25. OLCDU
26. HATRE
27. NTPLA
28. CPASE
29. EBE
30. GENYER
31. WHROT
32. PARPE
33. ESRHAC

APPENDIX G:  
MATERIALS AND MEASURES – STUDY 4

**[Prime procedure – See Appendix C]**

**NEXT SCREEN**

Thank you for completing the first study. In this next study, we would like to get your opinions of a task. This would be a task that may be available in the future, and we want to get your opinions on it. Please read the description carefully before going to answer questions.

Click on the next page to begin the next study.

**NEXT SCREEN**

*Please read about the task below:*

In this study, you will be given a word fragment task. Your performance on this task will be used as a measure of your persistence, an important personal attribute; as such your performance on this task could vary greatly based on how much effort you put forth to complete.

For this task, you will be given word fragments. For each word fragment, you will be asked to list any words you can think of that can be started by this word fragment. For instance, if you were given the fragment “cur”, you would list all the words you can think of (e.g. “current, cure, etc.”) that you could create starting with this fragment.

Note that your performance on this task will be measured in a specific way.

**HIGH ATTAIN:** To do well on this task, you should try to get through *more* word fragments (go through at least 14 fragments) and list a few words (at least 2 words) for each fragment.

**LOW ATTAIN:** To do well on this task, you should go through *less* word fragments (go through at least 4 fragments) and list several words (at least 7) for each fragment.

**NEXT SCREEN**

How motivated would you be to do well on this task? (not motivated at all/very motivated)

**NEXT SCREEN**

How often do you do word tasks similar to the ones in this study? (Never/Very Often)

How much do you enjoy working on these kinds of word tasks? (Not at all/very much)

**NEXT SCREEN**

Proficiency in English:

Gender:

Age:

APPENDIX H:  
MATERIALS AND MEASURES – STUDY 5

**[Prime procedure – See Appendix C]**

**NEXT SCREEN**

You are now finished the first study. Click on the next page to begin the second study.

**NEXT SCREEN**

In the next study, you will read about a task, including instructions on what the task would include. This task will be made available soon and you may be then asked to sign up to participate in this task. We will ask for your opinions about how you would feel if you had to take it exactly as it was described to you. Please read the following pages carefully, and answer questions as if you were actually about to take the task.

**NEXT SCREEN**

*Please read about the task on this page. You will answer questions about this task after you finish reading about it:*

In this study, you will be presented with word puzzles. Performance on this task is often used as a measure of one's problem solving abilities, which have been shown to be an important predictor for future success in many areas.

This test helps us to identify people who are exceptional in this area. If you score above a certain cutoff score, this suggests that you are very much above average in abilities.

For this task, you will be given a puzzle that has hidden words in it (see below for an example). You will be asked to find as many hidden words as you can embedded in the puzzles. When you find one word, you will click on it to highlight the word (it will highlight if you get a correct word). Words can be found in any direction (e.g. forwards, backwards, diagonal).

You will be presented with a total of 3 puzzles, and you will get a short amount of time to find all the words in each puzzle. (Note that you will be given options to skip puzzles, or end the task on your own).

To do well, you should correctly identify at least **9 (36) words total** (total meaning the total amount of all the words you find across all 3 puzzles).

K B V V E S M A G I C A L R H  
M I W T E R Q U J W X U S R T  
G L V N I M A G I N A T I O N  
Z L J O U R N A L I N G C X W  
C E T R I M A G E J S L J Q W  
R Y S N S W E I P Q I N F O O  
E I M U S E X F A B N E F M R  
A R S K E T C H I X G R L E D  
T P O E T R Y R N S I U O M S  
I D O F Z I X J T I C T W O H  
V A Z S Z M K V O Q S U M R E  
I N X B M V H O A Y Y L L Y S  
T C Q U M F Z M N X F U H P E  
Y E T Z D F J Y W C L U B A T  
M O W T C R E A T E C W L S N

#### NEXT SCREEN

It has been found that lack of practice can result in a score that is lower than warranted by the person's actual problem solving abilities. Practicing for even a short time can help, and those who are good can really excel with practice. We want to measure the impact of practice on your score, so you will be either given the chance to practice first, or go directly to the test.

We may not have space for everyone in the practice group. Right now, we would like to assess your interest in joining the no practice group (if joining this, you will not get a chance to practice before beginning the test).

Would you be willing to join the no practice group? (not at all/very willing)

**NEXT SCREEN**

You will now proceed to final questions, you will not be taking the task now but may be asked at another time.

**NEXT SCREEN**

How often do you do these kinds of word tasks?

How much do you enjoy these types of tasks?

**NEXT SCREEN**

Gender:

Age:

APPENDIX I:  
MATERIALS AND MEASURES – STUDY 6

**[Prime procedure – See Appendix B]**

**NEXT SCREEN**

You are now finished the first study. You will be taking a word scramble task in the next study, to measure your intelligence.

**[Handicap condition only]**

It has been found that lack of practice can result in a score that is lower than warranted by the person's actual intelligence. We want to measure the impact of practice on your score, so you will be either given the chance to unscramble a few words first, or go directly to the test.

**NEXT SCREEN [handicap condition only]**

Right now, there are too many people in the practice condition. We would like to ask you to be in the no practice group, so you will not get a chance to practice before beginning the test. Please click below if you agree to be in this group (I agree).

**NEXT SCREEN**

In this study, you would be presented with a word scramble task. Performance on this task is often used as a measure of intelligence.

You would be presented with a number of words that are scrambled, and you would need to unscramble each word. See below for an example:

OORD - unscramble to create the word DOOR

We will give you a number of these to see how many you can complete in a few minutes. (Note that you will be given options to skip words, or end the task on your own).

To do well on this task, you need to correctly unscramble **at least 32** of the available word scrambles.

Click on the next page to begin.

### **NEXT SCREEN**

You will start the task immediately following this page. You can try to complete as many word scrambles as you can (it should take a few minutes to complete them all).

### **NEXT SCREEN**

[Note one word will appear on each page (a total of 33 words can be solved). Each page is timed].

1. NDWI
2. LAMSL
3. AOEGRN
4. REFNGI
5. SUMOE
6. HICAR
7. CENIMAH
8. OTAB
9. ZEESEN
10. EGRTI
11. ODSA
12. OOTMTA
13. LAWL
14. PELES
15. OATOPT
16. RAYLE
17. THISR
18. LNSIET
19. ITLUSONSO
20. BEVEMNOR
21. KEBI
22. ITH
23. KSPEA
24. RFTEUU
25. OLCDU
26. HATRE

27. NTPLA
28. CPASE
29. EBE
30. GENYER
31. WHROT
32. PARPE
33. ESRHAC

## APPENDIX J:

### MATERIALS AND MEASURES – STUDY 7

**[Prime procedure – See Appendix C]**

#### **NEXT SCREEN**

Thank you for completing the first study. Please click on the next button to begin the next study.

#### **NEXT SCREEN**

In this study, we are interested in learning why students may use tablet products (for instance, iPad, Android, Kindle Fire). We want you to think about using tablet for a class.

**High Attain:** Pick a class where doing well is important for you and would reflect highly on you, but where you also think it would be fairly easy to do well (that is, you would likely earn a good grade with a little effort).

**Low Attain:** Pick a class where doing well is important for you and would reflect highly on you, but where you also think it would be fairly difficult to do well (that is, you may not earn a good grade even with effort).

List this class below:

#### **NEXT SCREEN**

How much are you willing to pay for a tablet? (enter dollar amount below):

#### **NEXT SCREEN**

Is doing well in this class an attainable goal? (not at all/definitely)

How important is it for you to do well in this class? (not important at all/very important)

#### **NEXT SCREEN**

Gender:

Age:

## APPENDIX K:

### MATERIALS AND MEASURES – STUDY 8

**[Prime procedure – See Appendix C]**

#### NEXT SCREEN

Thank you for completing the first study. In the next study, we are interested in your evaluation of an exercise program. Please click on the next button to begin.

#### NEXT SCREEN

*Please read about the program below, we will ask you questions about this on the next pages.*

#### **FitPro**

An important part of getting and staying in shape is making sure that you can get exercise. FitPro designed to make sure you can work all the areas you need no matter your schedule, with each workout taking about 30 minutes to complete. The program has several different workout routines which include both cardio components to help you lose weight and strength training elements to tone muscles. Each routine also targets different muscle groups to make sure your workouts stay fresh. If you join the program, you can access videos anywhere, and you will be able to measure and track your activities easily online.

**High Attain:** FitPro is also designed to get you to your goals. The program recommends you do at least **3 workouts a week** to really look and feel your best.

**Low Attain:** FitPro is also designed to allow you to get you to your goals. The program recommends you do at least **7 workouts a week** to really look and feel your best.

#### NEXT SCREEN

How willing are you to buy this exercise program? (not willing at all/very willing)

**NEXT SCREEN**

How much do you agree with the statements (strongly disagree/strongly agree):

Using this exercise program would make me feel I could get in shape on my own.

Using this exercise program would make me feel that that I could take ownership over my fitness goals.

**NEXT SCREEN**

How important would it be for you to exceed expectations set by the exercise program? (not at all/very)

How important would it be for you to feel you could do better than most people who use this program? (not at all/very)

**NEXT SCREEN**

How much would you enjoy using this exercise program? (not at all/very much)

**NEXT SCREEN**

How important is it for you to be in good shape? (not at all/very)

**NEXT SCREEN**

According to the program description, how many workouts do you have to do a week to look and feel your best?

How much difficult would it be meet the program goals? (not at all/very)

**NEXT SCREEN**

Enter the number of times per week you exercise for at least 30 minutes:

**NEXT SCREEN**

Below, list what you think is the number of times people should work out per week (for at least 30 minutes):

**NEXT SCREEN**

Gender:

Age: