APPROACHING HEALTH:

DOES AN ABSTRACT MINDSET PROMOTE POSITIVE RISK?

by

Michael E. Feeney

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Thesis Advisor: Dr. P. Niels Christensen

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_____
Dr. P. Niels Christensen
Thesis Advisor

_____6/9/15_____
Date

_____
Dr. Ann Elliott
Committee Member

_____6/9/15_____
Date

_____
Dr. Ruth Riding-Malon
Committee Member

_____6/9/2015_____
Date

Abstract

Investigations of risky behavior often focus on negative or destructive risk taking, such as drug use, unsafe sexual activity, and dangerous thrill seeking. Less often studied is positive risk, defined in this thesis as taking *action* when there is a higher probability for gain in the long term and loss in the short term. The purpose of this study was to examine the interaction of individual differences in goal attainment, known as regulatory focus style, and different mindsets on the endorsement of positive risk. Using a survey and vignette method, data was gathered from 159 undergraduate participants. First, regulatory focus style was measured by scores for prevention and promotion-focus on the Regulatory Focus Questionnaire. Next, participants were randomly assigned to one of three experimental conditions: concrete mindset, abstract mindset, or control (no manipulation). Mindset was manipulated with a previously developed written task based in construal theory. Participants were then presented with a series of hypothetical scenarios in which positive risk was illustrated as a health seeking behavior. Mindset was hypothesized to moderate the relationship of regulatory focus style and positive risk, with abstract mindsets increasing positive risk endorsement. Higher promotion-focus was found to be a significant predictor of positive risk, but no interactions or main effects for prevention-focus or mindset were observed.

Key words: positive risk, health and help seeking, avoidance, regulatory focus, construal level.

Michael E. Feeney
Department of Psychology
Radford University

Dedication

I dedicate this to Anne Stevens. Through snakes and frogs she kindled my love of science.

Acknowledgments

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Chapter 1: Purpose of Study

"Fortune helps those who dare" (Virgil, 2004, 249).

Previous studies have focused on general risk propensity to predict health outcomes, negatively correlating risk aversion with destructive health behaviors. For example, Anderson and Mellor (2008) found that risk-averse individuals were less likely to smoke cigarettes, drink heavily, and be obese. Despite the apparent negative role of risk-taking in health, behaviors such as utilizing mental health services and getting tested for a sexually transmitted infection can also be perceived as taking a risk. These health-seeking behaviors (hereafter considered "positive risks") often require overcoming perceived stigma and change from one's homeostatic state (Canvin, Martilla, Burstrom, & Whitehead 2007; Kushner & Sher, 1989; Spleen, Lengerich, Camacho, & Vanderpool, 2014; Vogel, Wester, Larson, & Wade, 2006), which challenges one's self-efficacy. Although positive risks would seem to have the potential to improve health, researchers have yet to clearly define the concept of positive risk and study its precipitating factors.

The goals of this thesis proposal were twofold. First, positive risk was defined within a larger framework for the ways in which people initiate healthy and unhealthy behavioral changes. Second, a study examined the interaction of individual differences and contextual factors underlying positive risk decisions. This thesis begins by defining positive risk, both in general and in the domain of health. Evidence is then provided for how individual differences in "regulatory focus" (Higgins, 1997) are expected to predict endorsement of positive risks. Next, construal level theory (Trope & Liberman, 2010) is used as a framework to understand the context in which people are most likely to endorse positive risk. Finally, the theories on

regulatory focus and construal level are integrated to provide a novel hypothesis for how to elicit

positive risks from populations who are especially risk averse.

Chapter 2: Overview of Past Research on Risk

The Chinese symbol for risk is a combination of both danger and opportunity. This duality represents the inherent probability for both gain and loss when taking a risk. Though the concept of risk may appear simple, there is much variability among colloquial and scholarly definitions. In this thesis, risk is studied specifically as it relates to *making health decisions that involve a choice to change behavior*. To provide a context for this approach to risk, ensuing paragraphs will review the contributions of prominent economic and psychological approaches to risk and apply them to a hypothetical example. Results from previous studies will be provided and discussed in regard to their insufficiency for accommodating the concept of positive risk.

For the purpose of illustrating a positive risk, take the following hypothetical example of "Sam." Sam has become depressed. He drinks alcohol to cope and he is thinking about joining a support group. However, he is anxious about what his friends will say, about his ability to cope with his depression in any other way, and about the group's ability to help. If Sam joins the support group he faces the potential loss of friends' approval and failing at an attempt to cope in a new way, though the support group could provide new ways to cope and develop stronger relationships. This example of a positive risk illustrates the opportunity as well as the danger of making a health-promoting decision. Various approaches to risk taking have attempted to establish what drives the decisional process in the face of uncertain loss and gain, with some of the earliest work formalized in economics.

Behavioral Economic Approaches to Risk

Economists have long approached the process of making decisions when faced with multiple probable outcomes, referred to as "decisions under risk." Their efforts, rooted in financial decisions, have attempted to describe how people should behave (normative) and how

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people do behave (descriptive) under risk. These approaches typically use different mathematical equations to describe their processes, such as combination rules to compute the "utility" or "value" of an outcome (Cho, Keller, & Cooper, 1999). Whereas *value* is an absolute amount of an outcome (for example, $5), *utility* is the ability of an outcome "to meet a need" (for example, $5 buys a beer which relieves Sam's depression). The most widely used economic theories in decision research for the last half century – expected utility theory (von Neumann & Morgenstern, 1944) and subjective expected utility theory (Savage, 1954) – suggest that a person's choices are determined by the outcome with the highest *expected* utility (Cho et al., 1999; Cohen, 1996; Weber & Johnson, 2008). That is, individuals first account for possible outcomes, then assign probability and desirability to each outcome, resulting in choosing the outcome with maximum expected utility. Though this process appears orderly, two individuals faced with the same decision do not always make the same choice.

Determining expected utility, though a formulated process to predict choice, varies from person to person. Individuals may assign different subjective probabilities and levels of desirability to each possible outcome of a decision. Following a series of decisions, a utility function is constructed that illustrates an individual's risk preference or "risk attitude" (i.e., risk seeking, neutral, averse). An individual is said to be *risk averse* if he or she chooses a sure option (100% chance of $25, expected value = $25) over an unsure option with a greater expected value (50% chance of 100, expected value = $50). Although financial examples like this provide some precision, these models do not account for complex behavioral decisions, such as in the case of Sam, when there are the numerous possible outcomes and contextual factors to include when determining expected utility and labeling an individual's preference for risk.

Indeed, identifying an individual's preference for risk, particularly in behavioral models, proves to be a complex hurdle. Major efforts have been made in the last fifty years that have led to four findings relevant to this thesis. First, an individual's risk preference has been shown to vary across domains such as finance, health, and recreation (Weber, Blaiz, & Betz, 2002; Hanoch, Johnson, & Wilke, 2006). Therefore, an individual who accepts a health risk may not necessarily accept a social risk. Second, contextual factors such as the stakes of the choice will affect the decision and differ among individuals. Numerous studies have shown that as the stake of a gamble rises (e.g. a $10 bet vs. a $10,000 bet), an individual's risk preference may switch, becoming more averse (Fehr-Duda, Bruhin, Epper, & Schubert, 2010; Holt & Laury, 2002). Third, research has also shown that the delay of possible outcomes affects decisions, which are inherent in many behavioral decisions such as treatment seeking. Future outcomes have been shown to be consistently rated with a lower probability (Rachlin, Raineri, & Cross, 1991), which essentially discounts its present value (van der Pol & Cairns, 2002). Individuals who show little discount for future utility of an outcome may be described as exhibiting self-control, whereas those with large discounts are labeled as impulsive (Berns, Laibson, & Loewnstein, 2007; O'Donoghue & Rabin, 1999). Fourth, according to prospect theory, avoiding loss is generally stronger than acquiring a gain of equal amount (Kahneman & Tversky, 1979). Therfore, humans may be hard-wired for being at least somewhat risk-averse. Taken together, these findings represent the development of economics over centuries and how they have led to an intersection with psychology and behavioral science.

Behavioral economic approaches to risk taking have touched on various components of positive risk such as immediate and delayed outcomes as well as the associated utility. However,

there is no single unifying theory or model to frame the current research questions about positive risk.

Psychological Approaches to Risk

Studies in disciplines outside of behavioral economics have typically conceptualized "risk" from a different perspective. For example, many studies in behavioral health have utilized the term risk as a proxy for thrill-seeking behaviors. These risky behaviors are defined by actions that have a high probability of resulting in harm or danger, such as illicit drug use (Gullone, Moore, Moss, and Boyd, 2000; Siegel et al., 1994). Individuals who engage more often in these behaviors have been labeled risk takers or thrill seekers (Connor, Stein, & Longshore, 2005; Plant & Plant, 1992). Yet, this label of risk seeker may be a misnomer for two reasons. First, risk seeking is often negatively valenced, failing to include positive risks such as help seeking. Second, typical risk seeking behaviors may be accounted for by sensation seeking, a personality trait identified by Zuckerman (1979) and characterized by a willingness to engage in behaviors that have a component of thrill, are novel, and provide intense sensations. Sensation seeking has been found to be correlated with various destructive health behaviors, as well as hedonic adventurous activities such as kayaking (Fischer & Smith, 2004; Hansen & Breivik, 2001; Horvath & Zuckerman, 1993). Though studies of risk and sensation seeking have addressed positive outcomes associated with risk taking, they have been limited to hedonic or adventurous activities. In two of these aforementioned studies, attempts were made to study positively valenced risky behavior. Fischer and Smith (2004) examined "adaptive" risks and Hansen and Brevik (2001) looked at "positive" risk, however, their definitions were limited.

In Fischer and Smith's (2004) study, maladaptive risks were defined as behaviors that have a higher likelihood of resulting in a negative life outcome whereas adaptive risks did not.

Negative risks included "Used LSD" and "Hitchhiking." Adaptive risks varied from "Played Soccer" to "Gone on a blind date." They found that maladaptive risk-taking was predicted by lower levels of deliberation (an increase in impulsivity), but higher levels of deliberation did not predict "adaptive" risks. Hansen and Breivik (2001) conducted a similar study on "positive" and "negative" risks. They defined negative risks as containing the potential for long-term losses, but the definition of positive risk was limited to short-term hedonic gains that are better defined as thrill seeking. The construction of positive-risk items in their measure were all constructed around well accepted social and legal behavior (for example, "Riding thrilling rollercoasters" and "Bathing in ice cold water"; p. 634). These definitions are insufficient in defining positive risks as they are restricted to behaviors that are social or recreational risks.

Currently, a void exists for labeling adaptive behaviors that carry a degree of uncertainty and possible harm. As mentioned previously, defining "positive risk" exclusively as behaviors that are socially acceptable (e.g., kayaking) is too limiting for positive risk. Also, globally defining and categorizing risky behaviors based solely on their probability for loss, rather than loss and gain, ignores the positive utility or purpose behind behavior. As suggested by Alfred Adler (1928/2013), all behavior is directed to a purpose or a goal, and movement toward that goal is key to adaptation. This is to say that risks are accepted with the hope to achieve something. Essential to the proposed concept of positive risk is a course of action, representing a behavioral change, and striving for long-term gains. The next section outlines a new theoretical model of behavioral decision-making and positive risk.

Proposed Theoretical Model of Positive Risk

Given the limits of past research on risk, this thesis proposes a new model for behavioral change that can be used to define positive risk. The model divides behaviors into four quadrants: avoidance, self-restraint, impulsivity, and positive risk (Figure 1).
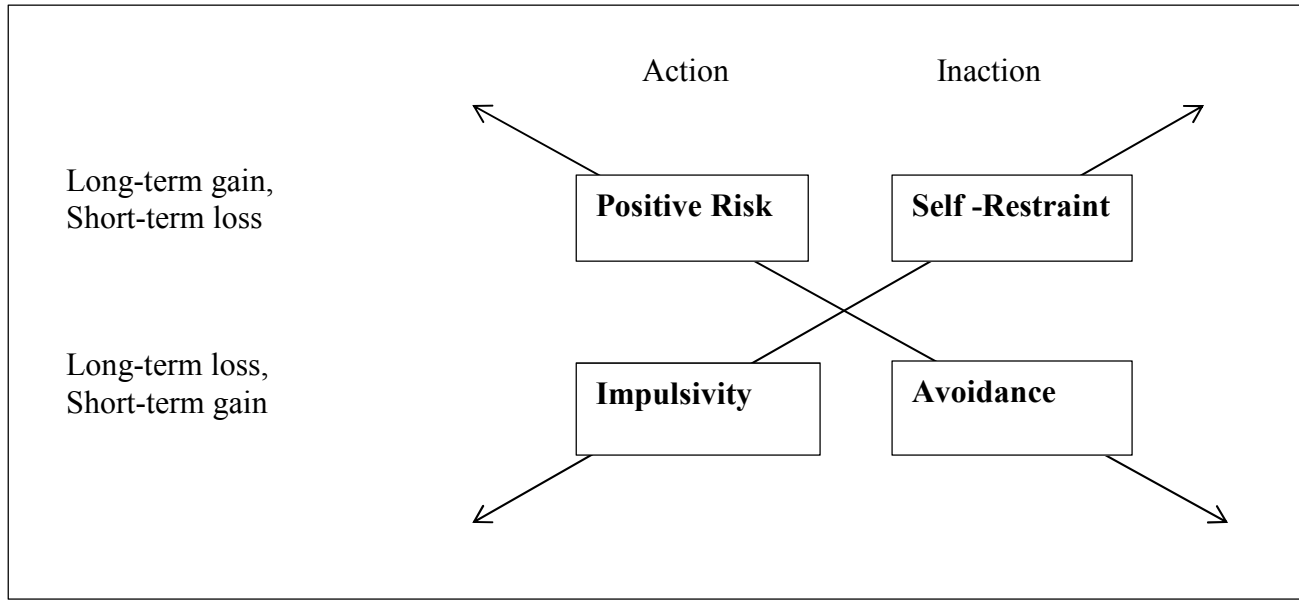
Figure 1. Theoretical model of behavioral change, based on action/ inaction and the temporal appropriation of the probability for gain and loss.

Though all four of these behaviors are proposed to have a goal, they vary by (1) how the goal is attained (action vs. inaction) and (2) the probability for gain/loss in the near and distant future. These divisions result in two axes: positive risk vs. avoidance, and impulsivity vs. self-restraint.

The distinction between action and inaction has been documented by past theories of motivation (Albarracin, Hepler, & Tannenbaum 2011). Albarracin et al. (2011) suggest that general goals of action and inaction are fundamental motivational states that, in addition to other areas of motivation such as attitude and intention, are significant in determining behavior. Furthermore, action and inaction goals are thought to exist as an evolutionary adaptation for exploration and problem solving (Albarracin et al., 2008). These two poles of motivation are

essential for directing behavioral change, such as from avoidance to approach behavior. In the example of Sam, who is aiming to cope with depression, he could be motivated to not leave the house (be inactive) or join a support group (take action). In previous studies, priming people with action led to more active behaviors compared to those primed with inaction. In one experiment, Albarracin et al. (2008) used a word completion task to prime individuals with either action or inaction. They were then given the choice to either draw (be active) or rest with their eyes closed (be inactive). Sixty two percent of participants primed with action chose to draw, compared to only 36% primed with inaction who chose to draw. A meta-analysis of similar experiments supported these findings. Tasks included eating, decision making, drawing, exercise and political participation, resulting in a moderate effect size ($d = .45$; Albarracin, Hepler, & Tannenbaum, 2011). Both action and inaction as motivational states will lead to a behavioral decision such as positive risk vs. avoidance or impulsivity vs. self-restraint, and in doing so will incur the probability for both gain and loss. What is left to be determined by the individual is the estimation of probable gain and loss in either the short-term or long-term.

Studies from economics and psychology have provided evidence illustrating how behaviors in the proposed model may be divided based upon probability for gain and loss in the near and distant future. According to Berns et al. (2007) decisions that have consequences (i.e., outcomes) that unfold over time are called intertemporal decisions. The theoretical model in this thesis proposes that all behavioral choices are intertemporal choices in that they have probabilities for loss and gain that vary and play out across time. Near and distant future outcomes in this thesis are suggested to be relative time points that are either initial consequences (short-term), or delayed or unfolding over time (long-term). Findings in this domain of research support common ideas of delayed gratification and self-control as having

higher probability for loss in the present and gain in the future, which will be reviewed in subsequent paragraphs.

Positive risk versus avoidance axis. Positive risks are decisions that involve *taking action* and result in a higher probability for *gain in the long term* and loss in the short term. The behavior of positive risk-taking may be thought of as an approach behavior to increase long-term success in goal attainment. Utilizing mental health services for the first time is a health seeking behavior that would qualify as a positive risk because of the possibility for long term gains and the possibility of loss. Kushner and Sher (1989) found that these possible losses include fear and negative effects on well-being. The possible long term gains can be seen in the successful use of cognitive behavioral therapy for numerous conditions such as post-traumatic stress disorder, anxiety, and depression (Dobson, 1989; Hofmann & Smits, 2008; Resick et al., 2002). Health seeking for physical illnesses and conditions such as sexually transmitted infections and obesity can also be defined as positive risks, as they are often restricted by fear and stigma. Evidence exists supporting interventions with long term gains for these conditions (Auerswald, Sugano, Ellen, & Klausner, 2006; CDC, 1993; Fortenberry et al., 2002; Mauro, Taylor, Wharton, & Sharma, 2008; Ross et al., 2000; Shaw, Gennat, O'Rourke, & Del Mar, 2006; Sowell et al., 1995). Given these findings, help and health seeking is a complex decisional process that requires an individual to take a positive risk by changing his or her course of behavior.

In contrast to positive risk, avoidance is defined in this thesis as a decision to *not take action*, resulting in a higher probability for *gain in the short-term* and loss in the long-term. Thus, avoidance behaviors oppose positive risk on both continua (future probabilities of gain versus loss, and action versus avoidance), placing avoidance and positive risk on an independent axis. As mentioned previously, positive risk has not been clearly defined before, although

avoidance has been studied extensively. An example of avoidance can be seen in individuals who isolate themselves to avoid anxiety brought on by social interactions. The result is short term gains with long term losses. In a meta-analysis conducted by Suls and Fletcher, avoidant coping styles were associated with more gains in the short term compared to non-avoidant coping strategies (1985). However, in a ten year study of avoidance coping, Holahan et al. (2005) found that participants' general ability to cope was related to increased chronic and acute life stressors after 4 years, and these life stressors were linked to increased depressive symptoms at the ten year mark. This study has shown that avoidance may serve a goal, but it is limited to the short term and the probability of loss increases with time.

  Impulsivity versus self-restraint axis. The second axis of the model spans from impulsivity to self-restraint. Impulsivity requires *taking action* (as did positive risk), but results in a higher probability for *gain in the short-term* and losses in the long-term (as did avoidance). Impulsive behaviors, such as choosing to eat fast food rather than waiting to cook at home, represent a lack of self-control. Dispositional measures of impulsivity have been found to be related to recreational drug use, criminal activity, mental illnesses and obesity (Butler & Montgomery, 2004; Mobbs, Crépin, Thiéry, Golay, & Van der Linden, 2010; Verdejo-García, Lawrence, & Clarke, 2008). In the proposed model self-restraint is characterized by *inaction* and a higher probability for *gains in the long-term* and loss in the short-term. For example, resisting a dessert can support a long term goal of weight loss, but in the short term the individual experiences probable loss in the form of hunger or desire. Hepler, Albarracin, McCulloch et al. (2012) found that priming an individual with inaction, rather than action, increases the display of delayed gratification (pursuing long-term goals over short-term goals). Within the current model, self-restraint is conceptually related – but distinct from – previously defined constructs

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like "self-regulation" and "self-control" (e.g., Vohs, Baumeister, & Ciarocco, 2005). Whereas self-restraint is prescribed by the current model to involve solely *inaction*, previous models of self-control and self-regulation include a host of behaviors designed to resist temptation and achieve long-term goals. The axis of impulsivity vs self-restraint represents a choice of behavior when faced with immediate vs delayed gratification as well as action vs inaction.

In summary, this model builds on previous efforts to identify behaviors as an action or inaction as well as identifies the temporal appropriation of gain and loss in behaviors. The model also provides a larger framework to conceptualize all behavior as being goal driven with varying degrees of probable loss. The need to further understand positive risk and its precipitating factors is emphasized when it is viewed as a behavioral option that supports sustainable goals. For example, some mental health agencies and policy makers have aimed to increase client well-being and independence by "positively" approaching risks (Neill et al., 2009; Robertson & Collison, 2011; Titterton & Smart, 2010). In these agencies, policies are outlined that prioritize client-centered goals such as travel and independent living. Consistent among them is identifying areas of harm or danger to minimize loss and increase the probability of long-term gains. Most notable in these processes of "positively" approaching risk is the *action* that is taken by the organization to impact clients' long-term well-being. In the next section, differences within individuals that are predicted to support endorsement of positive risk will be reviewed.

Chapter 3: Regulatory Focus

Regulatory focus theory (Higgins, 1997) provides a model to understand individual differences in self-regulation to achieve a goal. This theory presents two distinct styles of goal attainment labeled "prevention focus" and "promotion focus", which may be a chronic trait or primed in context. The present study is concerned with chronic regulatory-focus style and the differences that are expected to predict endorsement of positive risk. Although both styles are correlated with goal motivation, they differ in their propensity to approach pleasure (promotion) and avoid pain (prevention; Higgins et al., 2001), with each style inherently carrying a degree of probable loss and gain (i.e., risk). Health decisions present similar risks: to approach health or avoid illness. Promotion focus is characterized by approaching a goal focused on gains. When pursuing a goal, promotion focused persons (both chronic and primed) have been shown to utilize eagerness (Higgins et al., 2001). Compared to prevention-focused persons, they are more oriented to advancement and growth beyond the status quo by nurturing ideals (Liberman, Idson, Camacho, & Higgins, 1999) and being open to possibilities (Higgins et al., 2001). Prevention focus is represented by attending to non-losses, with a focus on safety and responsibilities (Liberman et al., 1999). When attaining a goal, prevention-focused persons, both primed and chronic, have been shown to utilize vigilance more than eagerness (Higgins et al., 2001). The following paragraphs will provide evidence for how each style of goal attainment relates to behavioral change and risk, with specific characteristics of prevention-focused persons identified suggesting aversion to positive risk.

Essential to the proposed model of behavioral decision making is the categorical division of action versus inaction, which denotes a change in behavior from a present state. In a series of studies conducted by Liberman et al. (1999), prevention-focused persons were found to prefer

stability, and promotion-focused persons were more apt to change when given the choice to resume an interrupted task or begin a new one. Using the Regulatory Focus Questionnaire (RFQ) developed by Higgins et al. (2001), Grant and Higgins (2003) found that promotion was negatively related to behavioral disengagement, a maladaptive coping style on the COPE scale, characterized by a withdrawal of effort (Carver, Scheier, & Weintraub, 1989). These results support promotion-focused persons being open to change (i.e., action) and nurturing goals to attain advancement and long-term success, essential to positive risk. In a separate series of studies, Fuglestad, Rothman, and Jeffrey (2008) found that promotion-focused persons were more likely than prevention-focused persons to initiate behavioral change in the domain of health, specifically, smoking cessation and weight loss. These results support prevention-focused persons being less open to change and advancement – essential to positive risk. The study found that a prevention focus was associated with greater maintenance of smoking cessation and weight loss, which suggests that no one style is superior at all times. However, when faced with a decision or opportunity to advance one's current position, as in addiction or obesity, inaction is not proposed to be adaptive or conducive to positive risk.

Other studies have examined when people are risk-seeking and the relation between risk-seeking and regulatory focus. Scholer et al. (2010) found in a series of studies that individuals are more risk seeking when in a state of financial loss (consistent with prospect theory), and when prevention focus is higher. However, the risk-seeking behavior predicted by a prevention focus was limited to being in a state of loss. Scholer and his colleagues set up participants with a financial scenario, in which they initially lost money. They were then presented with a choice between a conservative option that could not eliminate their loss and a risky option (lower probability) that possibly could. Participants with higher prevention-focus scores chose the risky

option, which was the only one that would allow them to return to the status quo. However, when presented with a conservative option that could eliminate their initial loss their risk preference changed and they were more likely to be risk averse. These findings support the contention that higher prevention-focused persons avoid loss and are risk averse when they experience a recent gain, similar to maintaining a present state. This is in contrast to striving for advancement and increasing probable long-term gains when one takes a positive risk.

Promotion-focused persons have been shown to be risk seeking in a different manner, more congruent with positive risk. Using a financial stock investment scenario in which participants believed they were investing real money, Zou, Scholer, and Higgins (2014) showed that promotion-focused persons switched to a risky option when in a financial state of loss or neutrality, but not in a state of gain (a recent win or advancement). However, following a gain, promotion-focused persons were more likely to choose the conservative option, suggesting that it is not a boundless drive. Whereas prevention focused persons are risk seeking in a state of loss and only to return to the status quo, promotion-focused persons take risks when in any state other than a gain (being above the status quo). Consistent with regulatory focus theory, promotion-focused persons nurture goals to attain advancement and possibly long-term gains as in positive risk.

In addition to economics research, regulatory focus theory has furthered knowledge of preferences for risk, leading to the investigation of positive risk in this thesis. Promotion-focused persons accept risks to get ahead of the status quo, and prevention focused persons accept risks only to return to the status quo from a state of loss. Furthermore, positive risk is gain-oriented behavior. Given these observations, promotion-focused rather than prevention-focused persons are thought to endorse positive risk more frequently. The next section will present a contextual

factor known as construal level and the associated theory to understand how individuals, specifically the prevention-focused, can be moved to endorse positive risk.

Chapter 4: Construal Level Theory

This section will provide support showing that construal level theory (Trope & Lieberman, 2010) can be used as a framework to understand how individuals can be moved to endorse positive risk. Construal level theory suggests that psychological distance influences decision making. Construals are ways people subjectively represent or understand events (i.e. a "twist of words") and are used to represent different levels of psychological distance (Trope, Liberman, & Wakslak, 2007). Psychological distance may best be understood by imagining a past event – aspects of this event (physical or emotional) can be described as if they were occurring in the present, and elicit closer psychological distance. They could also be described as if they were seemingly further in the past, thereby increasing psychological distance. Construals allow this description to vary. The event is at a set point in time, but the ability to describe it as having occurred at a seemingly closer point in time is achieved by using higher or lower levels of construals. Increased psychological distance can also be observed when describing an object or an action by its superordinate characteristics, such as "being active" (a high level of construal), compared to "running every morning" (a low level of construal).

 High level construals are also thought to be the result of an abstract mindset, which produces and identifies superordinate or essential goal relevant characteristics of objects or events (Fujita & Carnevale, 2012). Inversely, low level construals are thought to be the result of a concrete mindset, which produces subordinate or incidental goal relevant characteristics. Furthermore, an abstract mindset is endorsed more by promotion-focused persons, whereas a concrete mindset is endorsed more by prevention-focused persons (Förster & Higgins 2005).

The present study aims to extend this line of research and investigate the effects of abstract and concrete mindsets on positive risk. An abstract mindset (higher level of construal) is

hypothesized to increase endorsement of positive risk for three reasons: an abstract mindset creates a higher value-behavior relationship (Torelli & Kaikati, 2009), increases one's sense of power (Smith, Wigboldus, & Dijksterhuis, 2008), and increases self-control (Fujita, Trope, Liberman, Levi-Sagi, 2006). These three areas of supporting evidence will be expanded upon in the following paragraphs.

First, Torelli and Kaikati (2009) have stated that ideal end states can be represented abstractly as values. They further suggest that though values are not goals, they are motivational constructs that can elicit goals and guide action (p. 232). Torelli and Kaikati have provided evidence showing that an abstract mindset (high level of construal) rather than a concrete mindset (low level of construals) strengthen the relationship between values, judgment, and behavior. It is proposed that strengthening the value-behavior relationship will facilitate behavioral change and endorsement of positive risk for prevention focused persons who typically avoid errors of commission (a mistake made by *doing* something wrong) when pursuing a goal, by increasing the perceived suitability of the positive risk (health-seeking) to the value (improved health). Across two studies, Torelli and Kaikati demonstrated that an abstract mindset strengthened the value behavior relationship on self-report measures and on a behavioral task. Increasing the level of construal with an abstract mindset is proposed to increase positive risk endorsement regardless of regulatory focus style.

Second, Keltner, Anderson, and Greunfeld (2003) suggest that power is associated with the ability to achieve a goal. Goals such as improved health which may require positive risks are no exception. Health and help seeking behavior such as condom use and initiating smoking cessation have been found to be promoted in part by subjective perceptions of self-efficacy (beliefs about one's abilities), which is proposed to be similar to an objective sense of power

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(Baldwin, et al., 2006; Bandura, 1997; Conner, Stein, & Longshore, 2005; Strecher, DeVellis, Becker, & Rosenstock, 1986). In turn, Smith, Wigboldus, & Dijksterhuis (2008) have shown that as abstract thought increases, so does one's sense of power to achieve a presented goal, which is critical in driving a person towards action in positive risk.

Finally, making decisions to act in favor of long-term rather than short-term outcomes requires self-control (Ainslie & Haslam, 1992; Trope & Fishbach, 2000; Wertenbroch, 1998). This is critical in promoting positive risk, as action without deliberation or direction may result in impulsivity (choosing immediate over long term rewards). In a series of experiments conducted by Fujita et al. (2006), a focus on delayed rewards (i.e. long term gains) rather than on immediate outcomes increased when participants were primed with an abstract mindset. In Study 1, participants were first primed with either an abstract or concrete mindset using a written task (Freitas et al., 2004). Participants then assigned the price they would pay for various items received immediately and at a fixed time in the future. Participants primed to an abstract mindset showed less of a preference for immediate over delayed outcomes as shown by the lower value placed on items received immediately versus delayed. According to the findings within behavioral economics (Berns, Laibson, & Loewnstein, 2007; O'Donoghue & Rabin, 1999), individuals typically ascribe less value or utility to future outcomes. However, the findings by Fujita and his colleagues (2006) provided evidence that an abstract mindset diminishes the rate of discounting. Study 2 used the same mindset manipulation task as Study 1, but, was followed by a behavioral task of self-control that measured the time participants could hold a hand grip. They found that participants primed to an abstract mindset were able to hold the hand grip for a significantly longer period of time than those primed to a concrete mindset (accounting for a baseline measurement of grip strength). These findings provide support for the

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contention that an abstract mindset can not only affect evaluations of future outcomes, but can also affect actual behavior by increasing self-control and therefore the probability for long term rewards.

In the proposed theoretical model, positive risk is distinguished by 1) the increased probability of long term gains and 2) action. Abstract thought, as indicated by a higher level of construal, has been shown to significantly and positively affect these two characteristics by means of strengthening the value-behavior relationship, increasing a subjective sense of power, and increasing self-control.

Chapter 5: Hypotheses

Three hypotheses along with summarized supporting evidence are presented in this section. Previous research has shown that prevention-focused persons prefer stability and promotion-focused persons are more apt to change when given the choice to resume an interrupted task or begin a new one (Liberman et al., 1999). Promotion focus has been shown to predict change and initiation of new behaviors (Fuglestad, Rothman, & Jeffrey 2008; Grant & Higgins, 2003), and prevention-focused persons have been shown to avoid loss and be risk averse in the domain of gains (Scholer et al., 2010).

H1: It was hypothesized that there would be a main effect for regulatory focus.

a. Higher scores on the promotion subscale of the Regulatory Focus Questionnaire (RFQ) would predict endorsement of positive risk.

b. Lower scores on the prevention subscale of the RFQ would predict endorsement of positive risk.

An abstract mindset, and associated increase in level of construal, have been shown to strengthen the value-behavior relationship (Torelli & Kaikati, 2009). This relationship was proposed to support endorsement of positive risk for prevention focused persons by increasing the perceived suitability of the value (improved health) to the behavior (health seeking). An abstract mindset has also been shown to increase one's sense of power to achieve a goal (Smith, Wigboldus, & Dijksterhuis, 2008). Lastly, an abstract mindset has been shown to be positively related to self-control (Fujita et. al., 2006), which was proposed to support decisions being directed towards future rewards.

H2: It was hypothesized that an abstract mindset would predict endorsement of positive risk more than a concrete mindset.

According to Förster and Higgins (2005), increased abstract thought is a contextual factor adopted more by promotion-focused persons. This factor was posited to direct action and decisions towards change and increased long term gains, thereby increasing positive risk propensity when primed in participants. When primed with an abstract mindset, it was expected that a positive correlation between promotion scores and positive risk, and a negative correlation between prevention scores and positive risk would be observed. The main effect for mindset was proposed to be greater for participants with low prevention scores and high promotion scores, therefore moderating the relationships between regulatory focus style and positive risk propensity.

H3: Third, it was hypothesized that mindset condition (i.e. abstract vs. concrete) would moderate the relationship between regulatory focus style and positive risk endorsement.

a.) There would be an interaction of mindset condition and promotion-focus scores on positive risk endorsement (see Figure 2).

b.) There would be an interaction of mindset condition and prevention-focus scores on positive risk endorsement (see Figure 3).
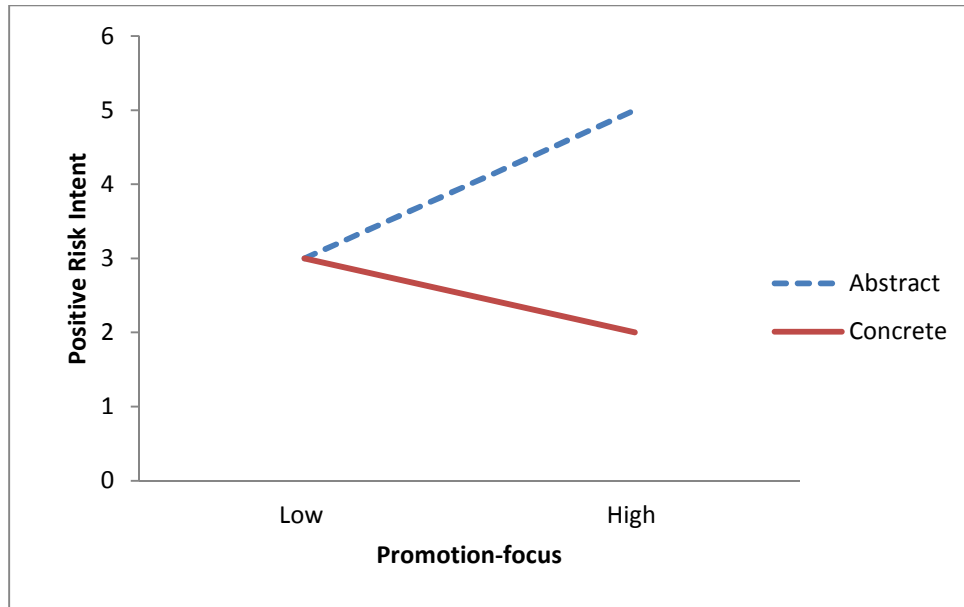
Figure 2. Expected results for promotion scores predicting positive risk intent, moderated by mindset.
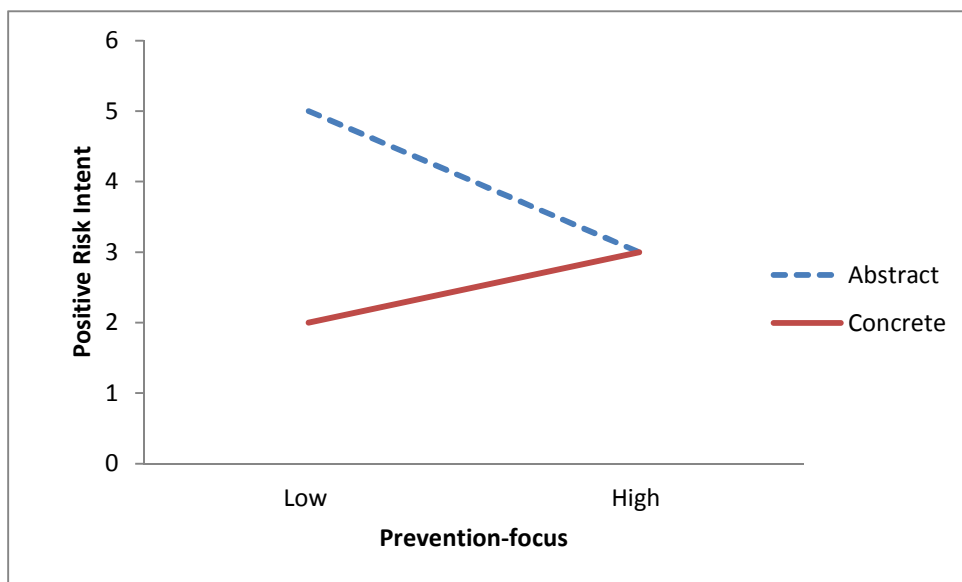
Figure 3. Expected results for prevention scores predicting positive risk intent, moderated by mindset.

Chapter 6: Pilot Study

The main purpose of the pilot study was to provide initial evidence for the reliability and validity of the hypothetical health scenarios. The internal consistency of the RFQ was also evaluated.

Participants

Forty-one participants were recruited using the Radford University SONA portal, an online system that solicits students enrolled in undergraduate psychology courses. Frequency distributions showed that the majority of participants were white (63.4%), 22% identified as African American, 4.9% as Asian American, 4.9% as Hispanic or Latino, and 4.9% identified themselves as belonging to multiple ethnicities. Participants ranged in age from 17 to 24 years old ($M = 18.29$, $SD = 1.1$). The majority of participants were female (85.4%). The sample also comprised mostly freshmen (92.7%), 4.9% were sophomores, and 2.4% were juniors.

Measures

Regulatory focus. The RFQ developed by Higgins et al. (2001) measured different motivational strategies used to attain a goal. This eleven item self-report measure distinguishes between two distinct styles of goal attainment known as prevention and promotion. The RFQ has been used to predict how a person will approach a goal based upon successful goal attainment in the past. The questionnaire comprises two subscales (promotion and prevention) totaling eleven items. Each item has a response scale of 1 (*never or seldom*) through 5 (*very often*). As prescribed by previous studies (Fuglestad et al., 2008; Grant & Higgins, 2003; Higgins et al., 2001), scores from each subscale were used as predictors in separate analyses. One question from the promotion focus subscale reads, "Do you often do well at different things that you try?" Whereas, an item from the prevention subscale reads, "Not being careful enough has gotten me

into trouble at times." The promotion scale has previously shown acceptable internal reliability ($\alpha = 0.73$), as has the prevention scale ($\alpha = 0.80$; Higgins et al., 2001). A test-retest reliability study by Higgins, et al. (2001), using 71 subjects and spanning two months, provided a 0.79 correlation for the RFQ promotion scale and a 0.81 correlation for the prevention scale. Given that each style is goal directed, a positive correlation between the two subscales has been observed ($r = 0.21$, p < .001; Higgins et al., 2001). A similar correlation was observed in the pilot study $r(41) = .24$, but was not statistically significant ($p = .14$), which was likely due to small sample size. A factor analysis performed by Higgins et al. (2001) resulted in two factors, and none of the items on the promotion subscale loaded onto the same factor as prevention subscale items, and vice versa.

Higgins et al. (2001) reported the findings from Harlow et al. (1998) who examined the convergent and discriminant validity of the RFQ. Higher prevention scores were shown to be related to vigilance, and higher promotion scores were related to being eager and risky when compared to scores on the Jackson (1974) PRF Harm Avoidance scale.(promotion partial-$r = .21$, prevention partial-$r = .15$). In another study Higgins et al. (2001) examined regulatory focus tactics (eagerness vs. vigilance) used to maintain a dieting goal. Higher promotion scores were positively related to tactics that advanced the goal, and higher prevention scores were not (Higgins et al., 2001). The utilization of ineffective tactics that would impede the goal had a significant negative relation with higher prevention scores but higher promotion scores did not. Study 4 examined subjective feelings of eagerness and vigilance by questioning participants' motivational frequency over the past week. Higher promotion scores were positively related to eagerness and preventions scores were significantly related to vigilance. The promotion subscale has also been negatively correlated with the Jones and Rhodewalt (1982) Self-Handicapping

Scale, which measures negative expectations of future positive rewards (partial-r = -.49; Harlow et al., 1998).

Health scenarios. Participants were given twenty health behavior scenarios that differ on axes of positive risk vs. avoidance (see Appendix A) and impulsivity vs. self-restraint (see Appendix B). These axes will hereafter be referred to as the *positive risk axis* and the *impulsivity axis*, respectively. These scenarios were written to provide a measurement of positive risk for the main study. Within each axis, five scenarios presented a mental health decision and five presented a physical health decision. They were also balanced for gender by presenting five male and five female protagonists for each axis. All scenarios were administered in a random order and counterbalanced by axis.

Scenarios on the positive risk axis were written to indicate that taking action, or choosing to perform the behavior, was a positive risk. These were all health-seeking behaviors such as: seeing a counselor for the first time, going to the dentist, and getting a flu shot. Inversely, choosing to not take action indicated avoidance. Scenarios written for the impulsivity vs. self-restraint axis indicated that taking action was associated with an impulsive behavior, such as: having sex without a condom, smoking, or exercising with an injury. For the impulsivity axis, choosing to be inactive and maintain a course of behavior was written to be indicative of exhibiting self-restraint (see Figure 1 for a review of the behavioral model).

Each scenario presented the options of *taking action* and *remaining inactive*. Four appraisal questions followed each scenario to measure the perceived outcomes of taking action or remaining inactive in the *short-term* and the *long-term*. This formulation allowed the appraisal questions to investigate outcomes on the two continua proposed in the behavioral model: time and action. The questions appeared as follows: (1) "In the short-term, what would the outcome

be if (*protagonist*) does (*behavior*)," (2) "In the short-term, what would the outcome be if (*protagonist*) does not (*behavior*)," (3) "In the long-term, what would the outcome be if (*protagonist*) does (*behavior*)," (4) "In the long-term, what would the outcome be if (*protagonist*) does not (*behavior*)." Participants responded to these first four questions on an interval scale of -3 (terrible) to 3 (great).

A fifth question asked the participants "If you were (*protagonist)* how likely would you be to (*perform action*)?" to which they responded on a scale of 0 (*extremely unlikely*) to 6 (*extremely likely*). This question aimed to measure the participants' level of intention, or endorsement of the behavior, and was the dependent variable in the main study.

Procedure

Each participant was asked to complete a demographics questionnaire and the RFQ. This was followed by the 20 health scenarios, each with four appraisal questions and one intention question. The RFQ and scenarios were pen and paper materials, administered separately to mimic the procedure of the main study. No more than three participants participated at a time.

Statistical Analysis Plan

All statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) version 21 software, with the significance level set to .05 for planned analyses. Data entry was performed twice, by two separate researchers, to screen for errors. The prevention and promotion subscales on the RFQ were scored according to guidelines outlined by Higgins et al., (2001) and entered as two separate continuous variables. Participants' responses to appraisal questions were divided by the two axes: positive risk and impulsivity. Four appraisal scores were gathered from the 10 positive risk axis scenarios, and four appraisal scores from the 10 impulsivity axis scenarios: (1) short-term action, (2) long-term action, (3) short-term inaction, (4)

long-term inaction. Then, each appraisal question was collapsed across scenarios, resulting in eight averaged appraisal scores for each participant. Participants' responses to the intention question were divided by axis (positive risk and impulsivity) and collapsed across scenarios, resulting in an averaged score for positive risk intent and impulsivity intent for each participant.

The analyses consisted of attaining Cronbach's alpha statistics and Pearson's correlations for main variables of interest (appraisal, intention, prevention and promotion scores). To evaluate the validity of the scenarios and examine the effects of action and time within them, two repeated measures multivariate analysis of variance (MANOVA) were conducted using the appraisal scores. Action was entered as the first factor with two levels (action and inaction). Time was entered as the second factor with two levels (short-term and long-term). The first MANOVA was performed on the positive risk axis scenarios, and the second on the impulsivity axis scenarios.

Results

Reliability analyses for the scenarios indicated various levels of internal consistency across axes. See Table 1 for Cronbach's alphas and a correlation matrix of primary variables. Reliability for appraisal questions on the positive risk axis scenarios ranged from .63 to .84. The positive risk intention question, which is used as the dependent variable in the main study, was found to have acceptable reliability ($\alpha = .72$). There was more variability among appraisal and intent questions on the impulsivity axis scenarios, ranging from poor to acceptable ($\alpha = .52$ to .83). Subsequent analyses revealed that omitting a scenario would not substantially improve the reliability of appraisal questions or the intention questions for scenarios representing the impulsivity axis.

Table 1. *Cronbach's Alphas and Pearson's Correlations in Pilot Study*

Measure	Variable	Alpha	1	2	3	4	5	6	7	8	9	10	11
RFQ	1. Prevention score	.74	-										
	2. Promotion score	.49	.24										
Positive Risk Axis	3. Positive risk intent	.72	.13	.09									
	4. Short-term inaction	.78	.32*	.02	-.28								
	5. Short term action	.84	-.28	.07	.31*	-.83**							
	6. Long-term inaction	.63	.22	-.05	-.35*	.29	-.28						
	7. Long-term action	.80	-.16	.13	.31*	-.25	.43**	-.70**					
Impulsivity Axis	8. Impulsivity intent	.52	-.26	-.16	-.15	.16	-.15	.21	-.05				
	9. Short-term inaction	.77	-.29	.11	.17	-.66**	.64**	-.23	.17	-.29			
	10. Short-term action	.83	.19	-.09	-.16	.58**	-.59**	-.01	-.08	.19	-.76**		
	11. Long-term inaction	.66	.25	.28	.09	-.12	.13	-.52**	.41**	-.56**	.26	-.04	
	12. Long-term action	.58	-.33*	-.18	-.15	.20	-.31	.50**	-.39*	.46**	-.17	.09	-.67**

Note. $^* = p \leq .05$, $^{**} = p < .01$.

The internal consistency for the RFQ differed for each subscale, and neither subscale significantly correlated with intention questions. The promotion subscale showed low internal consistency (6 items; α = .49) and the prevention subscale showed acceptable internal consistency (5 items; α = .74). Subsequent analyses revealed that deleting any of the items would not substantially improve the internal consistency of the promotion subscale of the RFQ.

Two distinct observations were made with respect to the correlations among appraisal questions. First, for any given scenario, as the benefits of action increased, the benefits of

inaction decreased (and vice-versa). Specifically, short-term action and short-term inaction appraisal scores were negatively correlated with each other on both the positive risk axis, $r(41) = -.83, p < .01$, and the impulsivity axis, $r(41) = -.76, p < .01$. A similar pattern of negative correlations was observed for long-term action and long-term inaction scores on both the positive risk axis, $r(41) = -.70, p < .01$, and the impulsivity axis, $r(41) = -.67, p < .01$. This consistent relationship between action and inaction suggests that the short-term and long-term appraisal questions are not as orthogonal as posited, and that all the information about participants' perceptions of taking action vs. inaction may be captured from either the short or long term appraisal score.

The second distinct observation was that the correlations were only significant between times for one pair of appraisal scores. That is, short and long-term action were positively correlated on the positive risk axis, $r(41) = .43, p < .01$, but not on the impulsivity axis. Short and long-term inaction also did not significantly correlate on either of the axes. This indicated that for the most part, participants rated the outcomes of action and inaction independently in the short and long terms. For example, the cost of not doing anything now (short-term inaction) is independent from the cost of what may happen in the future (long-term inaction).

With respect to the dependent variable in the main study, positive risk intent was significantly correlated with three of the four appraisal questions on the respective scenarios. Positive risk intent was positively correlated with long-term action, $r(41) = .31, p = .05$, and short-term action, $r(41) = .31, p = .05$, but negatively correlated with long-term inaction $r(41) = -.35, p = .02$. This was expected and indicated that as perceived long and short-term benefits of taking a positive risk increased, so did participants' endorsement of positive risk. It also

indicated that as the long-term benefits of not taking action (avoidance) decreased, endorsement for positive risk increased.

Participants' scores for impulsivity intent were uniquely correlated with long-term appraisal questions on their respective scenarios. Impulsivity intent was positively correlated with long-term action, $r(41) = .46$, $p < .01$. This suggested that as the perceived long-term benefits of impulsivity increased, so did participants' impulsivity intent. The opposite relationship was seen when using appraisal scores for the long-term benefits of self-restraint. Impulsivity intent was negatively correlated with long-term inaction, $r(41) = -.56$, $p < .01$. As the perceived long-term benefits for self-restraint decreased, participants' endorsement of impulsivity intent increased.

Next, a repeated measures MANOVA was performed with appraisal scores from positive risk axis scenarios. Significant main effects for action, $F(1, 40) = 797.74$, $p < .01$, $\eta^2 = 0.95$, and time, $F(1, 40) = 10.35$, $p < .01$, $\eta^2 = 0.21$ were observed (Figure 4). Specifically, action ($M = 2.09$, $SD = 0.48$) was rated as more beneficial than inaction ($M = -1.73$, $SD = 0.44$). Furthermore, short-term action and inaction ($M = .23$, $SD = 0.21$) were rated as significantly more beneficial than long-term action and inaction ($M = .13$, $SD = 0.15$). The two main effects were qualified by a significant interaction between action and time, $F(1, 40) = 139.79$, $p < .01$, $\eta^2 = 0.78$.

Figure 4. Mean scores for appraisal questions on scenarios representing the positive risk axis. Participants' responses were on an interval scale of -3 (terrible), 0 (nothing), to 3 (great).

Evaluating the simple effects with paired samples *t*-tests revealed that positive risks are rated as more beneficial than avoidant behaviors in the short and long-term. Short-term action (*M* = 1.55, *SD* = 0.75) was rated significantly higher (more beneficial) than short-term inaction (*M* = -1.09, *SD* = 0.68), $t(40) = -12.35$, p < .01. Long-term action (*M* = 2.65, *SD* = 0.36) was also found to be rated significantly higher than long-term inaction (*M* = -2.38, *SD* = 0.39), $t(40) = 46.58$, p < .01. Simple effects tests were conducted between levels of time to examine the interaction. Action was rated as significantly more beneficial in the long term (*M* = 2.65, *SD* = 0.36) than in the short term (*M* = 1.55, *SD* = 0.75), $t(40) = -10.36$, p < .01. Inaction was found to be rated as more costly in the long term (*M* = -2.38, *SD* = 0.39) than in the short term (*M* = -1.09, *SD* = 0.68), $t(40) = 12.25$, p < .01. These tests suggest that positive risks are perceived to be increasingly beneficial over time, and avoidant behaviors are more costly over time.

Finally, the repeated measures MANOVA was performed with appraisal scores from impulsivity axis scenarios. Again, a significant main effect for action was observed $F(1, 40) = 166.18$, *p* < .01, $\eta^2 = 0.81$ (Figure 5). However, unlike what was observed for the positive risk

scenarios, action ($M = -1.11$, $SD = 0.62$) was rated as significantly less beneficial than inaction ($M = 1.20$, $SD = .63$). This was expected and indicates that overall, impulsive behaviors are less beneficial than self-restraint behaviors. This was true in the short-term and the long-term. Short-term action ($M = -.41$, $SD = 1.01$) was rated as significantly less beneficial than short-term inaction ($M = .60$, $SD = 0.84$), $t(40) = -3.71$, $p < .001$, and long-term action ($M = -1.81$, $SD = 0.64$) was rated as significantly less beneficial than long-term inaction ($M = 1.81$, $SD = 0.74$), $t(40) = 18.36$, $p < .001$. Time was marginally significant, $F(1, 40) = 2.95$, $p = .09$, $\eta^2 = 0.07$, but the interaction of action by time was found to be significant, $F(1, 40) = 71.22$, $p < .01$, $\eta^2 = 0.64$. Simple effects tests were conducted between levels of time to examine the interaction. Action was rated as significantly less beneficial in the long term ($M = -1.81$, $SD = .64$) than in the short term ($M = -.41$, $SD = 1.01$), $t(40) = 7.87$, $p < .01$. Inaction was found to be rated as more beneficial in the long-term ($M = 1.81$, $SD = .74$), than in the short term ($M = .60$, $SD = .84$), $t(40) = -7.98$, $p < .01$. Therefore, as time progresses impulsive behaviors only gain costs, while self-restraint becomes more beneficial.
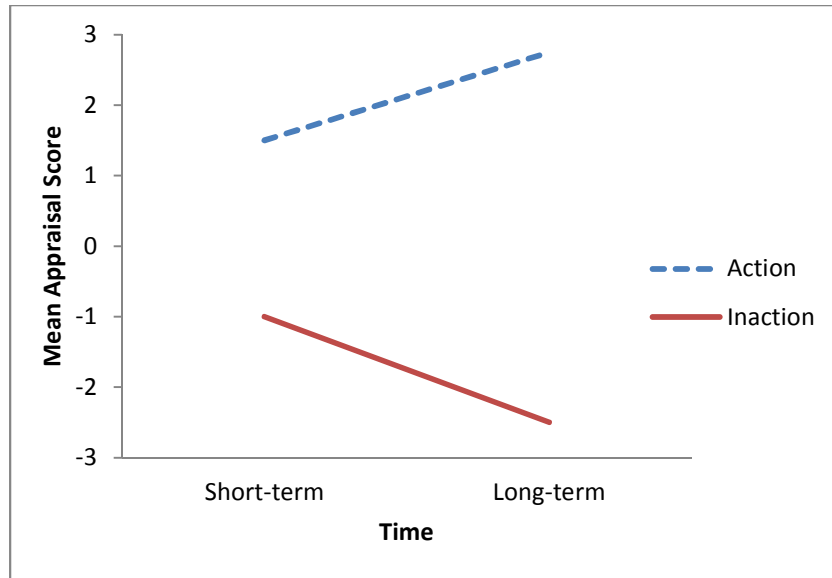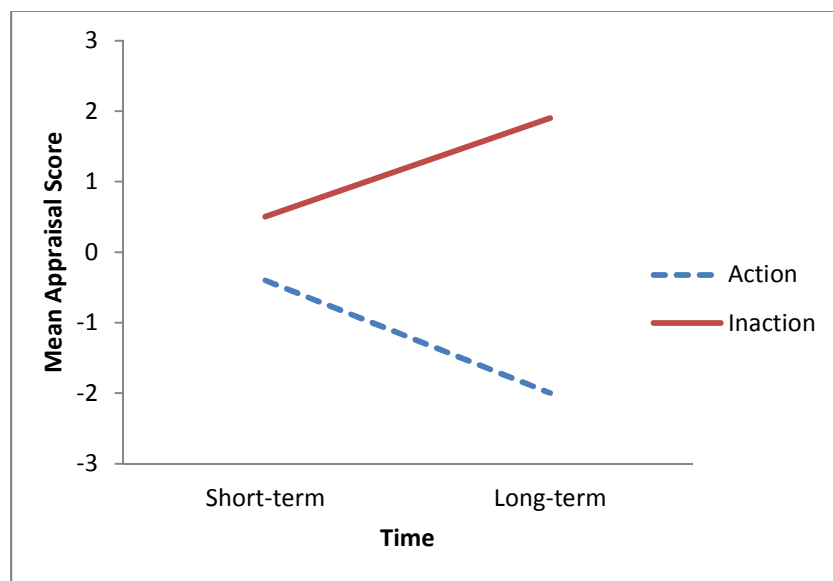

Figure 5. Mean scores for appraisal questions on scenarios representing the impulsivity axis. Participants' responses were on an interval scale of -3 (terrible), to 0 (nothing), to 3 (great).

Conclusion

The pilot studied was designed to provide initial evidence for the reliability and validity of the scenarios according to the proposed behavioral model. Of particular interest was demonstrating that positive risk would be rated as less beneficial than avoidance in the short term, but more beneficial in the long term. Validity for the positive risk scenarios was indicated in part by the correlations among appraisal and intent scores, as well as the MANOVA analysis. As expected, action and inaction were found to represent opposing behaviors: positive risk vs. avoidance, and impulsivity vs. self-restraint. This was evidenced by the negative correlations between the perceived benefits of long-term action and inaction, and short-term action and inaction for both positive risk and impulsivity axis scenarios. However, the lack of significant correlations for appraisal scores between times suggested that short- and long-term appraisals are distinct functions. That is, how an individual appraises the short-term costs or benefits of a behavior is not necessarily indicative of how he or she appraises the future outcomes of a behavior. The different effects of short-term and long-term appraisals have been identified in previous decision making research and speak to the difficulty of constructing simple functions to illustrate decisions that play out over time.

Positive risk was proposed to be characterized by taking action and having a greater probability for gain in the long term than in the short-term. This process was observed in the simple effects test in the first MANOVA. The benefits of taking action (positive risks) increased over time, and the benefits of inaction (avoidance) decreased. These results provide support for the overarching behavioral model. However, positive risks were not rated as costly, or less beneficial, than avoidance in the short term. This may be due to a presentation or testing effect, in which participants were conflicted about identifying an action as having fundamentally

different outcomes in the long or short-term, and attempted to make them appear consistent. Furthermore, it speaks to an underlying premise of this thesis, which is that decisions are not as clear as they appear on paper. That is, when faced with the task of appraising the outcomes of a behavior in the short and long terms, individuals may be driven to be more consistent than they would be in real life. The second MANOVA provided evidence that taking action is not always beneficial. This was expected, and illustrates the utility of inaction—exhibiting self-restraint (inaction) can be beneficial.

It was unexpected that long-term and not short-term appraisal scores would correlate more consistently with intent scores. The relation of long-term appraisal and intent may be due to a desirability effect on the participants. As suggested by the dual processing model (for a review see Evans, 2008), the unique long-term correlations with intent may also be explained by the tendency of participants to use a more conscious thought process when evaluating scenarios, compared to a less conscious decision making style that is likely in a live behavioral task.

Reliability analyses provided sufficient evidence that the scenarios were a stable measure for positive-risk intent. However, the long-term action question for the positive risk axis scenarios was found to have poor reliability, and subsequent analyses showed that this Cronbach's alpha was not improved by dropping a single scenario. The internal consistency was found to vary for items on the impulsivity axis scenarios, which were not necessary for hypothesis testing. In a review by Evenden (1999), impulsivity was found to be interpreted in a multitude of ways, and the breadth of interpretations may contribute to the inconsistent ratings observed on this axis of impulsivity.

With respect to the RFQ, it was expected that the promotion subscale would be positively correlated with positive risk intent, and that the prevention subscale would negatively correlate.

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Surprisingly, neither of these correlations was observed. The interpretability of the promotion subscale was limited due to the lack of internal consistency, and subsequent hypothesis testing using these scores should be interpreted with caution.

In conclusion the scenarios were found to be reasonably valid and reliable indicators of positive risk intent. However, the proposed behavioral model was not fully supported.

Chapter 7: Method

Participants

One hundred seventy-two participants were recruited using the Radford University

SONA portal. Expected sample size was calculated for an interaction with two main effects

using G*Power based on a medium effect size, an alpha level of .05, power equal to .80, and

was revealed to be n = 158. Participants who failed to complete 80% (16 of 20) scenarios were

dropped from the sample. Twelve participants were missing entries from 5 or more scenarios,

and 1 participant was missing the RFQ. All of their data was excluded from analyses. Frequency

distributions showed that, of the resulting main study sample (n = 159), the majority of

participants were white (64.2%), 20.8% identified as African America, 1.9% as Asian American,

0.6% as Pacific Islander or Native Hawaiian, 0.6% as Native American, 7.5% as Hispanic or

Latino, and 4.4% identified themselves as belonging to multiple ethnicities. Participants ranged

in age from 18 to 48 years old (M = 19.19, SD = 2.78) years of age. The majority of participants

were female (67.3%). The sample also comprised mostly freshmen (67.9%), 13.2% were

sophomores, 14.5% were juniors, and 4.4% were seniors.

Measures

Regulatory focus. Promotion and prevention focus were measured with the RFQ (see

pilot study). The promotion subscale showed poor internal consistency (α = .57) and the

prevention subscale showed acceptable internal consistency (α = .76). A significant correlation

between the two subscales was not observed in the main study, $r(158)$ = .10 , p = .2.

Health scenarios. All 20 scenarios evaluated in the pilot study were used. Reliability

analyses were performed and can be seen in Table 2**.** A similar set of repeated measures

MANOVA analyses that was performed in the pilot study was duplicated using data from

participants in the control condition (no manipulation) of the main study. Results were similar to those observed in the pilot study. There was a main effect for action, but not time. A significant interaction between time and action was observed. For scenarios representing the positive risk and impulsivity axis, there was an interaction between time and action. Positive risk was perceived as more beneficial in the short and long-term compared to avoidance. Furthermore, the difference between them grew over time; as the value of positive risk increased over time, so did the cost of avoidance.

Table 2. *Cronbach's Alphas and Pearson's Correlations in Main Study*

Measure	Variable	Alpha	1	2	3	4	5	6	7	8	9	10	11
RFQ	1. Prevention score	.76	-										
	2. Promotion score	.57	.10										
Positive Risk Axis	3. Positive Risk intent	.70	.08	.16*									
	4. Short-term inaction	.80	-.02	.6	-.26**								
	5. Short term action	.81	-.08	.07	.32**	-.73**							
	6. Long-term inaction	.77	-.04	-.13	-.37**	.35**	-.23**						
	7. Long-term action	.71	-.10	.08	.46**	-.39**	.37**	-.81**					
Impulsivity Axis	8. Impulsivity intent	.62	-.29**	-.14	-.20*	.09	-.12	.01	-.12				
	9. Short-term inaction	.78	.04	.00	.11	-.36**	.58**	.06	.10	-.21**			
	10. Short-term action	.74	-.09	.07	-.17*	.49**	-.59**	.00	-.11	.29**	-.79**		
	11. Long-term inaction	.59	.18*	.02	.21**	-.13	.14*	-.32**	.38**	-.21**	.17*	-.04	
	12. Long-term action	.64	-.10	-.06	-.32**	.18*	-.12	.48**	-.44**	.32**	-.01	.07	-.66**

Note. * = $p \leq .05$, ** = $p < .01$.

Procedure

No more than three students participated per session. Each participant received a demographics questionnaire and the RFQ. Next, the participant was randomly assigned to an experimental condition and given the corresponding mindset manipulation task (concrete $n = 55$, abstract $n = 51$) or no task (control condition $n = 53$).

Construal level (abstract vs. concrete thinking), was manipulated using the "How, Why" written task developed by Freitas, Gollwitzer, and Trope (2004). In the manipulation task, participants in both abstract and concrete mindset conditions received a passage that contained similar information. They differed in the focus on either "How" or "Why" one would want to achieve a goal, according to the condition. These passages have been developed and used by Freitas et al. (2004, p.743) in conjunction with the written manipulation task. Participants in the abstract-mindset experimental condition received the version asking a series of four ascending "Why?" questions following the prompt "Improve and maintain heath" at the bottom of the page. The ascending order of questions and answer boxes is intended to promote the ascending superordinate responses that are representative of an abstract mindset. This task has been shown to increase psychological distance and abstract thinking (Freitas et al, 2004)[1]. Participants in the concrete mindset condition received the version asking a series of four descending "How?" questions, following the same prompt a the top of the page, which has been shown to decrease psychological distance and promote concrete thinking (Freitas et al, 2004). The participants' descending order is intended to visually promote the desired subordinate responses,

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[1] In a pilot study noted in Freitas, et al. (2004, p. 743), a large effect size was found for abstract thought when measuring the abstractness of language used by participants ($d = 1.47$). In their main study, participants primed with an abstract mindset were able to list significantly more long term goals vs. immediate emotions for others ($d = .43$). Other effect sizes reported by Freitas and his colleagues for the mindset manipulation task ranged from $d = .37$ to .72.

representative of a concrete mindset. Next, participants responded to appraisal and intention questions attached to each scenario. They were then dismissed.

Statistical Analysis Plan

The statistical analyses were performed in three steps: preliminary, hypothesis testing, and exploratory analyses. The preliminary analyses consisted of a series of Pearson's correlations among primary variables (prevention, promotion, appraisal, and intention scores). Independent samples *t*-tests also compared association*s* between demographic variables (sex, class rank, and ethnicity) and the main variables of interest. The reported statistical results of the *t*-tests were dependent on the outcome of Levene's test of equal variance assumed. If the test was significant, equal variances not assumed were reported. A test of random assignment was also performed with two separate one-way factorial ANOVAs by examining the differences of regulatory focus style by condition. In the first ANOVA, experimental condition was entered as the independent categorical variable and prevention scores from the RFQ were entered as the continuous dependent variable. Promotion scores were entered as the dependent variable in the second. The assumptions of parametric testing were also evaluated by examining the skewness and kurtosis of positive risk intent to ensure a normal distribution.

For hypothesis testing, two separate hierarchical regression analyses were performed. Scores from the prevention and promotion scales were standardized by obtaining z values for each based on the standard deviation of the sample, then entered as two separate continuous predictors. The three experimental conditions were entered as two dummy-coded predictors in a regression model, following guidelines prescribed by Aiken and West (1991). Positive risk intent scores were entered as the dependent variable. In the first model, promotion scores and the dummy codes for experimental condition were entered into the first block. Regression

coefficients with *t* values that were significant at the .05 alpha level indicated main effects. The interaction terms (promotion x dummy code 1 and promotion x dummy code 2) were then entered into the second block. A significant F value for the R^2 change of block 2 would have indicated a significant interaction, thus supporting the moderation hypothesis. These analyses were repeated in a second model with promotion scores substituted by prevention scores that are hypothesized to have a significant negative relationship with positive risk endorsement (hypotheses 1b), and to be moderated by mindset (hypothesis 3b).

Exploratory analyses consisted of similar regression analyses using four different forms of the dependent variable. The first used positive risk intent scores from only six of the ten scenarios. These six were all successfully transformed by the log function and all of the appraisal scores for these scenarios were significantly different from each other. The second only used scores from scenarios representing physical health, and the third used scores from mental health scenarios. Lastly, hypothesis testing was carried out with untransformed scores from all ten scenarios.

Chapter 8: Results

Preliminary Analyses

A series of preliminary analyses were conducted to identify associations between demographic variables (sex, class rank, and ethnicity) and the main variables of interest (promotion score, prevention score, positive risk intent, and impulsivity intent; see Table 2 for a correlation matrix). Differences between genders were observed for impulsivity intent, and prevention scores. Men ($n = 52$, $M = 2.22$, $SD = 0.80$) endorsed impulsivity to a higher degree than women ($n = 107$, $M = 1.85$, $SD = 0.66$), $t(89.94) = 2.92$, $p < .01$ (equal variances not assumed, $F = 4.3$, $p = .04$). Women ($M = 16.84$, $SD = 3.49$) scored significantly higher than males ($M = 15.56$, $SD = 2.95$) on the prevention subscale, $t(157) = -2.29$, $p = .02$.

Differences in prevention scores were also seen between class ranks, $F(3, 158) = 5.71$, $p < .01$. Freshmen ($n = 108$, $M = 15.88$, $SD = 3.41$) scored significantly higher than sophomores ($n = 21$, $M = 19.04$, $SD = 2.67$), $t(127) = -4.02$, $p < .01$. Sophomores scored significantly higher than juniors ($n = 23$, $M = 16.65$, $SD = 2.90$), $t(42) = 2.84$, $p < .01$, and higher than seniors ($n = 7$, $M = 16.14$, $SD = 2.67$), $t(26) = 2.49$, $p = .02$.

Differences between white and non-white participants were observed for positive risk intent and scores from the prevention subscale. White participants ($n = 102$, $M = 1.32$, $SD = 0.14$) rated positive risk intent significantly lower than non-white participants ($n = 57$, $M = 1.36$, $SD = 0.11$), $t(157) = -2.16$, $p = .03$ (equal variances were not assumed, $F = 4.6$, $p = .03$). White participants ($M = 16.85$, $SD = 3.35$) had significantly higher prevention scores than non-white participants ($M = 15.65$, $SD = 3.29$), $t(157) = 2.19$, $p = .03$.

Three particular correlations among intention scores and primary variables provided supporting evidence for the hypotheses and model of behavior change. As proposed, participants with higher scores on the promotion subscale were more likely to endorse taking positive risk, $r(159) = .16$, $p = .05$. They were also less likely to endorse impulsivity $r(159) = -.20$, $p = .01$. Finally, participants who scored lower on the prevention subscale were more likely to endorse impulsivity, $r(159) = -.29$, $p < .01$.

A test of random assignment was performed to evaluate differences of regulatory focus style by condition. An analysis of variance showed that participants' prevention scores did not differ significantly by experimental condition, $F(2, 155) = 0.4$, $p = .67$. However, a separate ANOVA showed that promotion scores did differ significantly by experimental condition, $F(2, 155) = 4.54$, $p = .01$. Results of Fisher LSD post-hoc tests revealed that mean promotion subscale scores for participants in the concrete mindset condition ($M = 21.33$, $SD = 2.95$) were significantly less than those in the abstract condition ($M = 23.06$, $SD = 3.12$), $t(105) = -3.01$, $p < .01$.

Analyses testing the assumption of normally distributed data revealed that positive risk intent scores were negatively skewed on all ten scenarios (see Table 3 and Figure 6). To achieve a normal distribution, Log transformation guidelines provided by Howell (2007) were followed prior to hypothesis testing. First, positive risk intent scores were converted into non-zero positive integers. Next, values were reverse scored to fulfill the positive skew assumption in the Log transformation. Then the Log10 function in SPSS was applied. This statistical procedure identifies the exponent that a base of 10 must be raised to in order to get the original value (scores for positive risk). Original and adjusted statistics can be seen in Table 3. The transformation successfully normalized responses on seven of the ten scenarios, as evidenced by

the standard error being equal to or greater than half the value for skewness. The newly

transformed intent scores were reversed again to achieve the original direction of results.

Table 3. *Log10 Transfromation of Positve Risk Intent Scores*

Scenario	Cases	Original			Transformed		
		Mean	SD	Skewness	Mean	SD	Skewness
1	159	5.23	.98	-1.70	.59	.21	-.58
2	154	4.19	1.28	-.77	.45	.21	**.36**
3	158	4.38	1.39	-1.23	.49	.23	**.06**
4	159	5.37	.97	-1.53	.55	.21	-.96
5	158	4.51	1.21	-1.01	.50	.21	**.23**
6	156	4.46	1.41	-0.93	.51	.25	**.06**
7	156	5.06	1.06	-1.36	.55	.22	**-.33**
8	156	4.79	1.22	-1.19	.57	.23	**-.14**
9	159	4.12	2.03	-.95	.49	.30	**-.21**
10	159	5.21	1.09	-1.91	.66	.21	-.74
Averaged	159	4.73	0.73	-0.77	.54	.13	**-.12**

Note. SD = Standard deviation. Bold values indicate successful transformations.
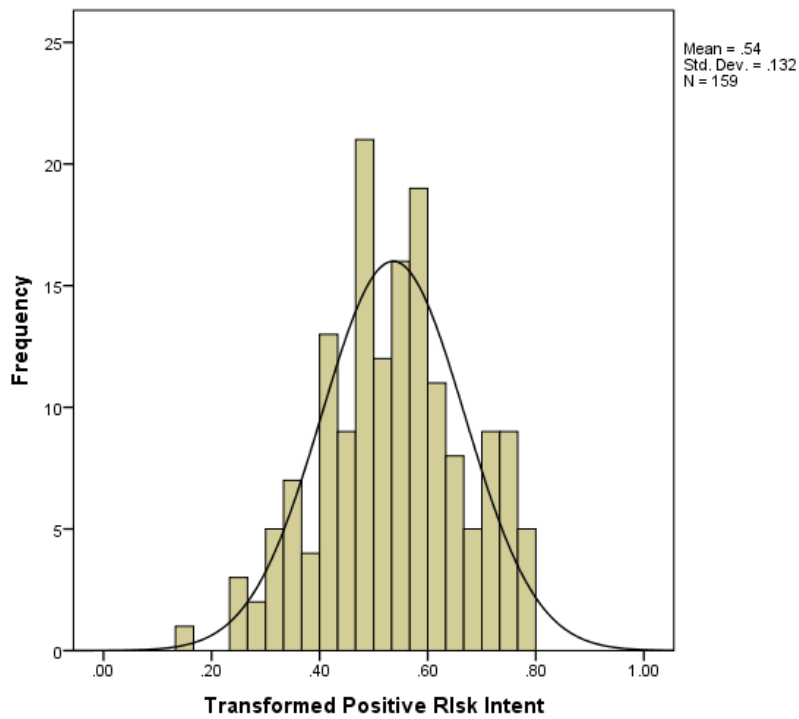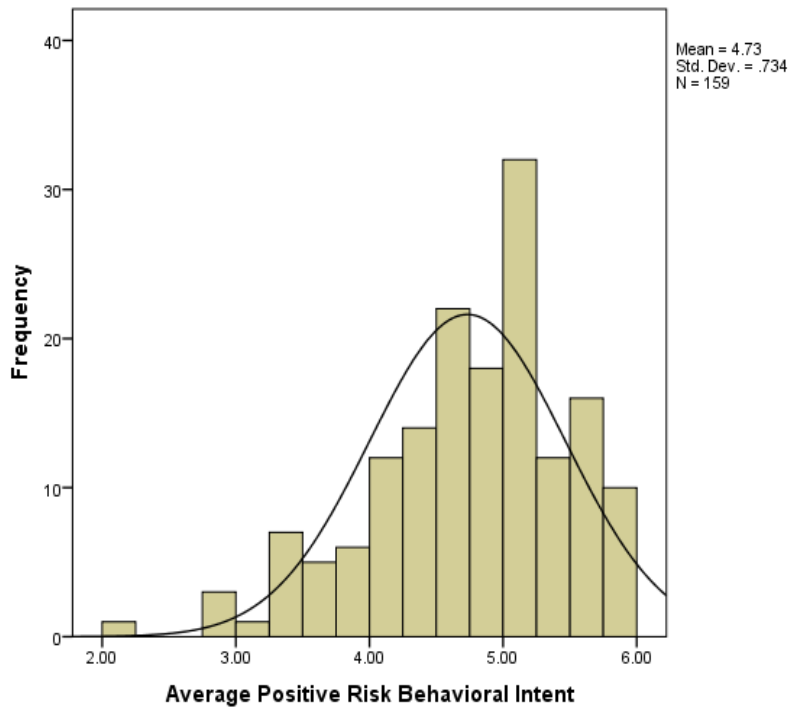
Figure 6. Distribution of positive-risk scores averaged across scenarios before (top) and after (bottom) transformation.

Main Analyses

To determine if there were significant interactions between the regulatory focus subscale scores and experimental condition, a hierarchical regression analysis, as outlined by Aiken & West (1991), was followed. See Table 4 for results using promotion scores and Table 5 for results using prevention scores. In support of hypothesis 1a, a main effect for promotion focus scores on positive risk was observed, $\beta = .18$, $t = 2.18$, $p = .03$, whereby greater promotion scores indicated higher positive risk scores. The overall model in block 1 of the regression analysis, accounting for promotion scores and mindset condition, was not found to account for a significant portion of the variance in positive risk, $F(3, 154) = 1.66$, $p = .18$. The change in variance accounted for between block 1 and block 2, $\Delta R^2 < .01$, $F(2, 152) = 0.08$, $p = .93$, did not provide support for hypothesis 2 – a main effect for mindset. When the interaction terms (promotion x dummy code 1, promotion x dummy code 2) were entered in block 2, a significant portion of the variance in positive risk intent scores was not accounted for, $F(5, 152) = 1.02$, $p = .41$.

When the regression analysis was performed with prevention scores, no significant main effects were observed. Neither participants' prevention subscale scores nor mindset accounted for a significant portion of the variance in positive risk, $F(3, 155) = 0.46$, $p = .71$. The R^2 change from block 1 to block 2 was also not significant, $\Delta R^2 < .01$, $F(2, 153) = 0.19$, $p = .82$, indicating that there was no main effect for experimental condition on positive risk. When the interaction terms where entered in block 2, no significant portion of the variance in positive risk was accounted for, $F(5, 153) = 0.35$, $p = .88$.

Table 4. *Regression Model with Promotion Scores Predicting Positive Risk Intent Moderated by Mindset*

Analysis	ΔR^2	(*df*)	β	*t*	*p*
Promotion x Condition					
Block 1	.03	(3, 154)			
Promotion			0.18	2.18	0.03
Concrete			0.05	0.48	0.63
Abstract			-0.05	-0.52	0.60
Block 2	.03	(5, 152)			
Promotion x Concrete			0.03	0.26	0.79
Promotion x Abstract			-0.01	- 0.09	0.92

Table 5. *Regression Model with Prevention Scores Predicting Positive Risk Intent, Moderated by Mindset*

Analysis	ΔR^2	(*df*)	β	*t*	*p*
Prevention x Condition					
Block 1	.01	(3, 155)			
Prevention			0.09	1.08	0.28
Concrete			0.00	0.14	0.89
Abstract			-0.03	-0.26	0.79
Block 2	< .01	(5, 153)			
Prevention x Concrete			-0.04	-0.35	0.73
Prevention x Abstract			0.03	0.25	0.80

Exploratory Analyses

The hypotheses of the current study were tested using various combinations of positive risk intent scores following preliminary analyses. First, untransformed positive risk intent scores were used to construct the dependent variable. Similar to the original hypotheses' tests, the only

significant observation was a main effect for promotion on positive risk intent, $\beta = .17$, $t = 2.03$, $p = .04$. No other significant effects were observed on the untransformed data.

Next, the Log transformation was successful in normally distributing seven of the ten scenarios (see Table 3), which were used to construct an average positive risk intent score for each participant. Internal consistency for this composition was marginally increased by dropping the other three scenarios, from $\alpha = .70$ to $.74$. Again, the only significant observation was a main effect for promotion focus, $\beta = 0.18$, $t = 2.24$, $p = .03$.

With respect to different domains of health seeking behavior, scenarios on both axes identified a behavioral decision in the domain of either physical or mental health. Each axis was balanced with five physical health scenarios and five for mental health. To explore possible effects of health scenario type, positive risk scores were divided between the two domains and the same hierarchical regression model was followed. When promotion scores were entered with experimental condition in block 1, there was a marginally significant effect, $F(3, 154) = 2.42$, $p = .07$. Similar to the main effect for promotion scores that was observed in the main hypothesis testing, promotion scores were found to significantly predict higher positive risk scores in the physical health domain, $\beta = .216$, $t(157) = 2.67$, $p < .01$. However, no interaction for promotion focus and experimental condition was observed, $F(5, 152)$ 1.44, $p = .21$. No main effects were observed with prevention scores, $F(3, 155) = 0.38$, $p = .76$, nor were there significant interactions, $F(5, 153) = 0.35$, $p = .88$. In the domain of mental health, no significant main effects for promotion or prevention were observed, with F values ranging from 0.17 to 0.71 (all probabilities greater than .50).

Chapter 9: Discussion

The purpose of this study was to examine whether the endorsement of positive risk was predicted by the interaction of individual differences (regulatory focus style) and contextual factors (concrete or abstract thinking). The study was developed within a model that defined positive risk in relation to action (vs. inaction) and long-term gains (vs. long-term losses).

Based on this model, a quasi-experimental design tested three hypotheses. First, it was hypothesized that there would be a main effect for regulatory focus style, with higher promotion scores and lower prevention scores predicting positive risk intent. Indeed, higher scores on the promotion subscale predicted positive risk intent, but prevention scores did not. That is, participants who were motivated to attain goals with eagerness and a focus on gains, also had greater intentions to take positive risks to improve health. This relationship was consistent with the findings that greater promotion-focus predicts the initiation of health behaviors (Fuglestad, Rothman, & Jeffrey, 2008). However, prevention-focus was unrelated to positive risk. Furthermore, the exploratory analyses found this main effect to be significant when only the five physical health, and not mental health, scenarios were included. Given the complexity of mental health decisions, it is possible that the physical health scenarios were more consistent indicators of positive risk.

One explanation for why promotion scores, but not prevention scores, predicted positive risk may be that they do not represent polar constructs. Promotion and prevention focus are measured on two separate subscales, which have only a small positive correlation (Higgins et al., 2001). Since they are both goal attainment styles, it is possible that some decisions elicit only a promotion-focus and others a prevention focus. For example, Keller (2006) found that

participants reported more "eagerness" (a characteristic of promotion-focus) when responding to self-efficacy and not response-efficacy items about a diet.

Another reason for the lack of predictive power of the prevention-subscale used in this study is that positive risk was rated as increasingly beneficial over time and participants' appraisal might not identify any substantive losses (see Figure 4). The prevention subscale measures the degree of goal attainment characterized by utilizing vigilance and reducing losses (Higgins, et al., 2001). If there were few perceived losses in the positive risk-taking scenarios, the prevention subscale may be irrelevant to those behaviors. However, Scholer et al. (2010) have shown that when a person's prevention-focus is high, he or she is more likely to avoid risks just to get ahead of the status quo. Therefore, a negative relationship was expected between prevention-focus and positive risk (a gain oriented behavior).

The second hypothesis stated that there would be a significant main effect for experimental condition: an abstract mindset would predict endorsement of positive risk more than a concrete mindset. However, being primed with an abstract or concrete mindset did not predict positive risk-taking. There were also no significant differences between experimental conditions on how people appraised the long-term and short-term costs/benefits of the scenarios. There are two possible reasons for this null effect from the experimental condition. First, the measurable effects of the manipulation task may have decayed across the administration of all twenty scenarios. Ideally, exploratory analyses would have examined the effects of the manipulation task on the first scenario administered to each participant. However, the scenarios were presented in a random order (alternating axes) that was not recorded. Therefore, had there been any effects of the manipulation task on the first few scenarios participants received, they could not be measured. Previous studies using the construal manipulation (Clark et al., 2012;

Freitas et al., 2004) had dependent variables limited to between two and four response items, which is a sizable difference compared to the present study.

A second possible reason for the lack of an observed main effect for experimental condition may be the presence of appraisal questions that followed each study. Construals are used to represent different levels of psychological distance. These different levels of psychological distance are indicative of different mindsets – abstract and concrete. The repeated act of appraising short and long-term behaviors illustrated in the scenarios could have had its own effect on psychological distance, drawing it in and out. As a result, any effects of the preceding mindset manipulation task could have been washed out. These two reasons also speak to the lack of support for the third hypothesis – no interaction between mindset condition and regulatory focus style on positive risk.

Although there was limited support fort the hypotheses, a beneficial outcome of the study was evidence for the proposed model of behavioral change. Participants appraised scenarios in a manner consistent with two continua of behavioral change – action and time. Participants saw increasingly large benefits of action in distant vs near future outcomes when reviewing positive risk. Inversely, when appraising impulsivity vs. self-restraint, participants reported benefits of inaction in distant vs near future outcomes.

Limitations

Health decisions present complex processes given the numerous individual and contextual factors that can affect them. This study attempted to isolate two predictors of health intention that are complex within themselves: goal attainment style and abstract/concrete mindset. Furthermore, the intentions measured were of a novel construct – positive risk. Given the complexity of the predictors and novelty of the dependent variable, it is not surprising that

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the study had a number of limitations. Several of these limitations are presented in the subsequent paragraphs

First, consistent with past research, the study did not include a manipulation check for the written construal task. Therefore, it is possible that the effect of the manipulation task was neither effective nor sustained across all scenarios. There was reason to believe it was a valid task given its reported effect sizes (moderate to large) and its use by previous researchers in published studies. Therefore, possible reasons for a lack of an effect are second to this limitation. Further study and the development of stronger manipulation tasks may be needed if it is to be utilized with extensive dependent variables.

A second limitation of the study was the use of intention as a proxy for actual behavior (positive risk). Azjen and Fishbein have presented two widely accepted models of decision making that state behaviors are affected by intentions, which are shaped by attitudes, social norms (theory of reasoned action; Azjen & Fishbein, 1980), and perceived behavioral control (theory of planned behavior; Azjen, 1991). Two meta-analyses studying these models indicated that it is reasonable to measure intentions as a proxy for behavior as they positively correlated (range of $r = .45$ to .47; Albarracin, Johnson, Fishbein, & Muellerleile 2001; Armitage & Conner, 2001), which indicates that approximately twenty percent of the variance in behavior is accounted for by intentions.

With respect to the scenarios, they may have been presented as too transparent. That is, they may have elicited cognitive processes that were stronger than the manipulation task. For example, the dual processing model of decision making suggests that individuals can use either a more conscious thought process or a more unconscious process that relies on heuristics (Kahneman, 2011). The former is used when awareness is high and the latter when one is

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fatigued or perceives the situation as habitual. The participants received a variety of scenarios that varied in severity of health decisions – from dieting to self-harm. This variability may have activated conscious systems of thinking that would not have been utilized in real life decisions. For example, impulsive decisions presented in the scenarios that normally rely on faster, less conscious processing, could have been driven by conscious thinking given the research environment.

One observation that did not affect hypothesis testing, but did conflict with the proposed model of behavior, was that participants found positive risk to be at least somewhat beneficial in the short-term. This finding may have been attributed to being evaluated via hypothetical scenarios rather than a live behavioral decision. Though the benefits of positive risk increased over time, the expected losses in the short-term were not found. Since participants were consistently rating polar behaviors such as avoidance versus positive risk or impulsivity versus self-restraint, they may have been drawn to view each behavior as entirely beneficial or costly. As previously mentioned, this "lack of losses" for positive risk is also a potential explanation for the null effect of prevention-focus as a predictor.

Another limitation of the dependent variable is the observed skewness of the distribution for positive risk intention. The log transformation that was applied in this thesis is one of the most widely used and accepted methods in dealing with skewed data (Feng et al., 2014). However, it still suggests that the data should be interpreted with caution. The skewness was observed across all positive risk axis scenarios, suggesting a problem in the perceived range of acceptable measures. That is, when rating intention, participants demonstrated a ceiling effect with respect to how likely they would be to take action. This suggests that capturing the entire scope of outcomes for positive risk was limited by the scenarios, their scale, or both.

Last of all, a significant limitation was the poor internal consistency observed for the promotion subscale. Given the low internal consistency, it is surprising that it predicted positive risk. This limitation also suggests that caution should be taken in interpreting the observed main effect. However, it was surprising that the internal consistency of the prevention subscale was more acceptable, but the results for prevention focus were null.

Future Directions

Risk taking has been studied extensively for over a century, and some of the greatest advances in understanding risk have come from different schools of thought approaching it. Positive risk should not be an exception: Qualitative, quantitative, and translational approaches for further study are encouraged.

Future research on positive risk may benefit from adhering to the proposed model of behavior which posits two continua: time and action. Redesigning the study could focus on other forms of manipulating mindset or condensing the dependent variable. Positive risk would also benefit from a qualitative study to identify potential components that differ by culture and population. Other possibilities include dismantling components of positive risk and studying them independently, such as short-and long-term appraisals.

In line with behavioral economic research, positive risks may be better illustrated by a computational function. Incorporating the differing effects of short-term and long-term outcomes into existing functions used to display a general risk attitude (risk-seeking, avoidant), would aid in simplifying and quantifying positive risk. Currently, multiple functions exist that display how value or utility change over time and affect decisions, but they are not consistent across behaviors (Rabin, 1998). It is unclear how positive risk – as defined in the current model – could be incorporated into existing functions.

Mindsets, such as abstract and concrete thinking used in the present study, may be relevant to the more familiar concept of mindfulness, a growing practice in various domains of healthcare. Mindfulness is currently used as a therapeutic tool for reducing the symptoms of multiple conditions (Grossman, Niemann, Schmidt, & Walach, 2004) and it may present itself as a pivotal aspect in making health decisions and positive risk. Mindfulness is characterized by maintaining a state of awareness of the present moment. In terms of psychological distance, this could indicate a neutral point, in which one's construal level is neither heightened nor lessened. It is unclear of how abstract and concrete thinking may play into mindfulness, but is worthy of investigation.

In conclusion, the present study demonstrated that having a higher promotion-focus goal attainment style can predict positive risk intentions for health behaviors. An overarching goal of this thesis was to contribute to the growing body of evidence that spans behavioral science and decision making, specifically in the domain of health. The lack of an effect for experimental condition suggests that the limited strength of the mindset manipulation and the length of the dependent variable may not have been well balanced. However, illustrating the short-term and long-term differences in various behaviors and creating a new model for understanding risk were beneficial outcomes of the study and invite further discussion.

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Appendix A: Hypothetical Scenarios, Positive Risk vs Avoidance Axis

John is new on campus. He is feeling overweight, sluggish, and tired. He has felt this way for some time and has yet to make a change to his diet or take on an exercise routine. He considers joining the gym because he thinks it will make him look and feel better, but worries how he will feel with other people watching him exercise. If he doesn't go to the gym, he may continue to feel tired and sluggish, but he wouldn't have any anxiety. John wakes up and has to decide to go to the gym or not.

In the short term, what would the outcome be if John does not go to the gym?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the short term, what would the outcome be if John does go to the gym?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if John does not go to the gym?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if John does go to the gym?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

………
…………………………………………………………..

If you were John, how likely would you be to go to the gym?

0	1	2	3	4	5	6
extremely unlikely	moderately unlikely	somewhat unlikely	not sure	somewhat likely	moderately likely	extremely likely

Brian has been feeling down. He talks to his friends about it, but nothing is changing. He finds himself sleeping in lately and not interested in what usually brings him enjoyment. He wants to feel like his normal self. He has learned of the free university counseling center but is not sure about going. If Brian goes he may get some help to feel better, but he doesn't know what his friends will think, and he is nervous about telling a therapist his problems. If he doesn't go, he

won't have to open up to anyone new, but he might continue to feel down for a while. The weekend is coming and Brian has to decide whether or not to go to the counseling center.

In the short term, what would the outcome be if Brian doesn't go to the counseling center?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the short term, what would the outcome be if Brian goes to the counseling center?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if Brian doesn't go to the counseling center?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if Brian goes to the counseling center?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

……………………………………………………………………………………………………
…………………………………………
If you were Brian, how likely would you be to go to the counseling center?

0	1	2	3	4	5	6
extremely unlikely	moderately unlikely	somewhat unlikely	not sure	somewhat likely	moderately likely	extremely likely

Carla is overweight and has trouble going up stairs, often getting winded. She tends to study alone and prefers to eat by herself off campus. She has some friends, but none of them share her experience of being overweight. She often feels judged and uncomfortable. On the way to class she sees a flyer for a women's support group. Under topics discussed it mentions body image, stress, and loneliness. Carla wants to feel better about herself. Going to the support group might help this. But, she worries that no one else will have the same problems and be able to relate. If she doesn't go, she will continue to feel alone and uncomfortable, but won't have to face any new people. The group starts soon and Carla has to decide to go to the support group or not.

In the short term, what would the outcome be if Carla does not go to the support group?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the short term, what would the outcome be if Carla does go to the support group?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Carla does not go to the support group?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Carla does go to the support group?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

………
………………………………………………………………..

If you were Carla, how likely would you be to go to the support group?

    0   1   2   3   4   5   6
extremely moderately somewhat not sure   somewhat   moderately extremely
unlikely   unlikely   unlikely   likely   likely   likely

A year ago Janet lost a loved one before she could say goodbye. Her grief has stuck with her despite talking to family and friends. It has begun to affect her work, ability to focus, and sleep. She considers going to a therapist for the first time. If Janet goes she may be able to get help and move past the death and have more control in her life again. However, she has doubts anything good will come of it. If she doesn't see a therapist these problems may persist for some time. She questions if a therapist will be able to do anything. She also worries that she is making a big deal out of nothing.   Janet is looking at the number for a recommended therapist, and has to decide to see a therapist or not.

In the short term, what would the outcome be if Janet does not see a therapist?

```
-3    -2      -1     0      1        2        3
Terrible            Nothing                  Great
```

In the short term, what would the outcome be if Janet does see a therapist?

```
-3    -2      -1     0      1        2        3
Terrible            Nothing                  Great
```

In the long term, what would the outcome be if Janet does not see a therapist?

```
-3    -2      -1     0      1        2        3
Terrible            Nothing                  Great
```

In the long term, what would the outcome be if Janet does see a therapist?

```
-3    -2      -1     0      1        2        3
Terrible            Nothing                  Great
```

……
…………………………………………………………………..

If you were Janet, how likely would you be to see the therapist?

```
     0        1         2          3        4          5          6
extremely  moderately  somewhat  not sure  somewhat  moderately  extremely
unlikely    unlikely   unlikely              likely     likely     likely
```

   After school started this semester, Amanda began feeling a pain in her back. At its worst, the pain shoots down her arm. She has heard about the health clinic on campus, but has never been to a doctor by herself before. She wants to feel better, but, she is not sure how the campus clinic works and what they will ask of her. She also does not want to be prescribed pills and worries about how to tell the doctor that. If she goes to the clinic, she might get some relief for her back and feel proud about going by herself.   But, she might feel overwhelmed and nervous. If she doesn't go, her pain could get worse or go away on its own, but she won't have to face a doctor. After class, her back is hurting, and she has to decide to go to the clinic or not.

In the short term, what would the outcome be if Amanda does not go to the clinic?

```
-3    -2      -1     0      1        2        3
Terrible            Nothing                  Great
```

In the short term, what would the outcome be if Amanda does go to the clinic?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Amanda does not go to the clinic?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Amanda does go to the clinic?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

……
………………………………………………………………..

If you were Amanda, how likely would you be to go to the clinic?

    0   1   2   3   4   5   6
extremely moderately somewhat   not sure   somewhat   moderately   extremely
unlikely   unlikely   unlikely   likely   likely   likely

Stephanie takes pride in her smile, but hasn't had to go to the dentist in some time. Last week she began feeling a pain that pulses and radiates in her jaw. She looked it up online and found multiple explanations for it, some serious, some saying it would go away soon. Stephanie wants the pain to go away, and going to the dentist might help that. But, she doesn't like spending an hour in the chair. The pain might turn out to be nothing. If she doesn't go to the dentist, the pain may pass, and she won't have to sit through a procedure. However, it could turn into something more serious. Stephanie gets off the internet and has to decide to go to the dentist or not.

In the short term, what would the outcome be if Stephanie does not go to the dentist?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the short term, what would the outcome be if Stephanie goes to the dentist?

-3   -2   -1   0   1   2   3

Terrible   Nothing   Great

In the long term, what would the outcome be if Stephanie does not go to the dentist?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Stephanie goes to the dentist?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

……
………………………………………………………..

If you were Stephanie, how likely would you be to go to the dentist?

     0   1   2   3   4   5   6
extremely   moderately   somewhat   not sure   somewhat   moderately   extremely
unlikely   unlikely   unlikely   likely   likely   likely

A few months ago Rachel was at a mixer and met someone. They ended up in a room alone, and she was taken advantage of sexually without having given consent. She hasn't told anyone about the sexual assault. She has been feeling depressed, often on edge, and has not been going out with her friends. She wants to feel better and believes that telling someone about it might help. A friend who has noticed Rachel acting differently suggests going to the counseling center if she doesn't want to discuss it with her. If Rachel talks to a counselor about it she may feel scared and overwhelmed, but less depressed and be able to go out with her friends more. If Rachel doesn't talk to a counselor about it she may be able to stop thinking about the sexual assault, but will continue to feel depressed and alone. Rachel is at home and has to decide to go to talk to a counselor or not.

In the short term, what would the outcome be if Rachel does not talk to a counselor?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the short term, what would the outcome be if Rachel does talk to a counselor?

-3   -2   -1   0   1   2   3

5

Terrible   Nothing   Great

In the long term, what would the outcome be if Rachel doesn't talk to a counselor?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Rachel does talk to a counselor?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

………
……………………………………………………………..

If you were Rachel, how likely would you be to talk to a counselor?

     0   1   2   3   4   5   6
extremely   moderately   somewhat   not sure   somewhat   moderately   extremely
unlikely   unlikely   unlikely   likely   likely   likely

Lately Jared has been having thoughts about hurting himself. He has never had these before and is not sure what to do, he is scared. He has been going about his day as usual, but it is difficult to ignore them. He wants to feel better and get rid of them but he is afraid and embarrassed to talk to anyone about them. He passes by a flyer for a crisis center that has a phone number to call and talk privately about disturbing thoughts. He considers writing the number down and calling because he wants to be happy and confident about life, but he is scared and embarrassed to admit his dark thoughts to another person. If he doesn't get the number and call he won't feel embarrassed, but he will still have thoughts about hurting himself.   Jared gets home and has to decide to call the crisis hotline or not.

In the short term, what would the outcome be if Jared doesn't call the crisis hotline?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the short term, what would the outcome be if Jared does call the crisis hotline?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Jared doesn't call the crisis hotline?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Jared does call the crisis hotline?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

……
………………………………………………………..

If you were Jared, how likely would you be to call the crisis hotline?

    0   1   2   3   4   5   6
extremely moderately somewhat not sure somewhat moderately extremely
unlikely   unlikely   unlikely   likely   likely   likely

Sam moved from out of town for his first year of college and the fall semester is coming to an end. The campus health clinic posted that that they are administering flu vaccinations for free to students, and today is the last day. Sam hates shots, he gets nervous and shaky. But Sam doesn't want to get sick this winter either, he wants to be healthy and active. If he gets the shot he will be better protected from the flue, but he's not sure he can follow through on it. If Sam doesn't get the flu shot he won't be nervous but he may get the flu. Sam gets out of class before the clinic closes and has to decide to go get the flu shot or not.

In the short term, what would the outcome be if Sam doesn't get the flu shot?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the short term, what would the outcome be if Sam does get the flu shot?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Sam doesn't get the flu shot?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Sam does get the flu shot?

```
-3    -2      -1      0       1       2       3
Terrible          Nothing                 Great
```

……
……………………………………………………………..

If you were Sam, how likely would you be to get the flu shot?

```
      0       1        2         3        4          5          6
extremely  moderately  somewhat  not sure  somewhat  moderately  extremely
unlikely    unlikely    unlikely                  likely      likely      likely
```

David has had multiple sexual relationships in the past, but has now been dating someone for a while. He recently found out a previous partner has a sexually transmitted infection. He knows that he needs to get tested for sexually transmitted infections, but also thinks he should ask his current partner to get tested. He wants to bring up the topic because he cares for his partner, but he is worried how the other person will react. If he doesn't bring it up the person won't know, and won't judge him. But, he may worry about their health. David meets his partner at the end of the day and has to decide to tell them or not tell them about getting tested.

In the short term, what would the outcome be if David does talk to his partner about getting tested?

```
-3    -2      -1      0       1       2       3
Terrible          Nothing                 Great
```

In the short term, what would the outcome be if David does talk to his partner about getting tested?

```
-3    -2      -1      0       1       2       3
Terrible          Nothing                 Great
```

In the long term, what would the outcome be if David does not talk to his partner about getting tested?

```
-3    -2      -1      0       1       2       3
Terrible          Nothing                 Great
```

In the long term, what would the outcome be if David does talk to his partner about getting tested?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

……………………………………………………………………………………………………
………………………………………………………………..

If you were David, how likely would you be to talk with your partner about getting tested?

    0   1   2   3   4   5   6
extremely moderately somewhat   not sure   somewhat   moderately extremely
unlikely   unlikely   unlikely   likely   likely   likely

Appendix B: Hypothetical Health Scenarios, Impulsivity vs. Self-Restraint Axis

Matthew and his roommates often party and have people over to drink and smoke. He has begun to feel nervous at school and when he goes out. He thinks that it may be due to the amount of drinking and smoking so he decides to that he should quit. One night he finds his house full of people and someone starts to pass around marijuana. Matthew considers smoking. If he passes, he might not be so anxious in class, but he doesn't want to miss out on anything with his friends. If he smokes his friends won't ask him any questions but he may feel nervous later. Matthew is sitting on the couch when it is passed around and has to decide to smoke or not.

In the short term, what would the outcome be if Matthew does not smoke?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the short term, what would the outcome be if Matthew smokes?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if Matthew does not smoke?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if Matthew smokes?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

………………………………………………………………………………………………………
…………………………………………………………..

If you were Matthew, how likely would you be to smoke marijuana that night?

0	1	2	3	4	5	6
extremely unlikely	moderately unlikely	somewhat unlikely	not sure	somewhat likely	moderately likely	extremely likely

Ryan is on a first date. They are both enjoying it and feel attracted to each other. The night goes on longer than they had planned, and they end up at Ryan's house. Ryan has had multiple sexual partners in the past 2 years and usually wears a condom. When his date asks if he wants to have sex, he says "yes." But, Ryan doesn't have any condoms. If Ryan has sex it would be without a condom, and though he wants to be with this person, he doesn't want to take the chance of contracting a sexually transmitted infection. If he doesn't have sex that night he is not taking a

chance, but he would worry what his date will think of him. His date doesn't care if he wears a condom, and he has to decide to have sex without a condom or not have sex.

In the short term, what would the outcome be if Ryan doesn't have sex?

```
-3    -2      -1    0      1      2      3
Terrible          Nothing              Great
```

In the short term, what would the outcome be if Ryan has sex without a condom?

```
-3    -2      -1    0      1      2      3
Terrible          Nothing              Great
```


In the long term, what would the outcome be if Ryan doesn't have sex?

```
-3    -2      -1    0      1      2      3
Terrible          Nothing              Great
```

In the long term, what would the outcome be if Ryan has sex without a condom?

```
-3    -2      -1    0      1      2      3
Terrible          Nothing              Great
```

………
…………………………………………………………..

If you were Ryan, how likely would you be to have sex without a condom?

```
        0       1        2         3        4         5         6
extremely  moderately  somewhat  not sure  somewhat  moderately  extremely
unlikely    unlikely    unlikely           likely     likely      likely
```

Sally works hard to eat healthy. She packs a nutritious lunch every day. Today her friends invite her to eat lunch with them at a delicious, but unhealthy, restaurant. Sally thinks about the invitation, but worries about how going out to lunch will affect her goal to maintain a healthy diet. If Sally doesn't go out with her friends she will eat her healthy packed lunch, but will miss out on a chance to hang out with her friends. Sally's lunch break is soon and she has to decide to join her friends for an unhealthy lunch or eat her packed lunch.

In the short term, what would the outcome be if Sally continues to eat her healthy, packed lunch?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the short term, what would the outcome be if Sally eats at the restaurant?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if Sally continues to eat her healthy, packed lunch?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if Sally eats at the restaurant?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

………………………………………………………………………………………………………
…………………………………………………………..

If you were Sally, how likely would you be to go out with your friends to lunch?

0	1	2	3	4	5	6
extremely unlikely	moderately unlikely	somewhat unlikely	not sure	somewhat likely	moderately likely	extremely likely

Tanya hasn't been sleeping well. She has trouble falling asleep and wakes up multiple times every night.   She gets to her dorm room and sees that her roommate has left out a prescription

bottle with a label that reads "May cause sleepiness." Tanya wants to get to sleep tonight, and thinks about taking a pill, but is unsure about what other side effects the medicine may have, and if her roommate will notice. If she doesn't take the pill she will probably have a problem sleeping like always, but she won't have to worry about her roommate or any side effects. Class is at 8 am and it's time to go to bed, Tanya has to decide to take the un-prescribed medicine or not.

In the short term, what would the outcome be if Tanya does not take the un-prescribed medicine?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the short term, what would the outcome be if Tanya takes the un-prescribed medicine?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if Tanya does not take the un-prescribed medicine?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if Tanya takes the un-prescribed medicine?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

………
………………………………………………………..

If you were Tanya, how likely would you be to take the un-prescribed medicine?

0	1	2	3	4	5	6
extremely unlikely	moderately unlikely	somewhat unlikely	not sure	somewhat likely	moderately likely	extremely likely

Tom got a cold last week and went to the doctor. He was prescribed antibiotics and has been taking them for a few days. Today was rough for Tom, and he's been feeling frustrated. He goes home and finds his friends relaxing outside drinking beer. Tom still has a few days left on his antibiotic prescription, and he remembers the doctor telling him not to mix it with alcohol. If Tom decides to drink, he will probably feel relaxed and have a good evening with his friends. But, his cold might come back. If he doesn't drink, he will continue to feel frustrated for a

while, but his antibiotics will work better to keep the cold away. Tom walks up to the porch and has to decide to have a beer or not.

In the short term, what would the outcome be if Tom has a beer?

```
-3    -2      -1     0      1      2      3
Terrible            Nothing              Great
```

In the short term, what would the outcome be if Tom doesn't have a beer?

```
-3    -2      -1     0      1      2      3
Terrible            Nothing              Great
```

In the long term, what would the outcome be if Tom has a beer?

```
-3    -2      -1     0      1      2      3
Terrible            Nothing              Great
```

In the long term, what would the outcome be if Tom doesn't have a beer?

```
-3    -2      -1     0      1      2      3
Terrible            Nothing              Great
```

……
…………………………………………………………..

If you were Tom, how likely would you be to have a beer?

```
      0        1         2          3         4          5          6
extremely  moderately  somewhat  not sure  somewhat  moderately  extremely
unlikely    unlikely   unlikely             likely     likely      likely
```

Anna has been fighting with her parents lately and seems as if no one ever really listens to her. She has been harming herself by cutting and even though she doesn't understand it, it seems to make her feel better. Anna comes home from school and gets in a fight with her parents about money, which brings up older arguments. As the argument escalates she runs to her room where she thinks about cutting. If she did harm herself she may feel relieved but she is putting herself in danger. If she doesn't harm herself she will be much safer, but will feel stressed and unsure about what to do. Anna goes to her room and has to decide to harm herself or not.

In the short term, what would the outcome be if Anna doesn't harm herself?

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-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the short term, what would the outcome be if Anna does harm herself?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Anna doesn't harm herself?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Anna does harm herself?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

……
……………………………………………………………..

If you were Anna, how likely would you be to self-harm?

        0   1   2   3   4   5   6
extremely   moderately   somewhat   not sure   somewhat   moderately   extremely
unlikely   unlikely   unlikely   likely   likely   likely

Marcus is a healthy young man taking a full course load this semester and maintaining good grades. He has been drinking energy drinks to keep going, but they usually wear off after a few hours and leave him tired, cranky, and tense. He knows they are not good for his health, which is important to him, but they keep him awake. If he doesn't get an energy drink he will feel tired for a while but will sleep better. If he gets an energy drink he will feel more alert now, but will have trouble studying and sleeping. Marcus passes a drink machine on campus and has to decide to get an energy drink or not.

In the short term, what would the outcome be if Marcus doesn't get an energy drink?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the short term, what would the outcome be if Marcus does get an energy drink?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if Marcus doesn't get an energy drink?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if Marcus does get an energy drink?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

………
………………………………………………………..

If you were Marcus, how likely would you be to get an energy drink?

0	1	2	3	4	5	6
extremely unlikely	moderately unlikely	somewhat unlikely	not sure	somewhat likely	moderately likely	extremely likely

Ron has been feeling stressed out and wants to go for a run like he does almost every day. But, this past weekend he hurt his knee and the doctor said to not run for a while. He has been on campus studying all day, and stressed out about a test he has tomorrow. He considers going for a run anyway because it helps him relax, but it may take his knee longer to heal if he does. If he doesn't go for a run his knee will heal faster, but he will still feel stressed. He leaves campus and has to decide to go for a run or not.

In the short term, what would the outcome be if Ron doesn't go for a run?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the short term, what would the outcome be if Ron does go for a run?

-3	-2	-1	0	1	2	3
Terrible			Nothing			Great

In the long term, what would the outcome be if Ron doesn't go for a run?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Ron does go for a run?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

………
………………………………………………………………..

If you were Ron, how likely would you be to go for a run?

     0   1   2   3   4   5   6
extremely moderately somewhat not sure somewhat moderately extremely
unlikely   unlikely   unlikely   likely   likely   likely

Donna feels nervous in crowds of people, and she hates it. She wishes she could handle it, but she always feels overwhelmed and ends up leaving. She goes out to dinner with some friends and then to a small party. She is having a good time until more people show up. Donna considers leaving right away because she doesn't want to feel nervous, but she thinks about how staying might help her to get over her anxiety. If she stays she may feel nervous, but it will help her to get over her fear of crowds. People are coming in the door and she has to decide to stay at the party or leave.

In the short term, what would the outcome be if Donna doesn't stay?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the short term, what would the outcome be if Donna does stay?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Donna doesn't stay?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Donna does stay?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

…………………………………………………………………………………………………
………………………………………………………..

If you were Donna, how likely would you be to leave the party?

   0   1   2   3   4   5   6
extremely moderately somewhat not sure somewhat moderately extremely
unlikely   unlikely   unlikely   likely   likely   likely

Christy used to smoke cigarettes all the time with her friends. Since she quit smoking, she has been able to breathe better and wakes up without coughing. She has moved to a new town where she's made a few new friends, but they aren't that close yet. Christy doesn't know what they really think of her. One night after dinner, they are all outside smoking and Christy is offered a cigarette. She considers having just one, and believes she will feel relaxed and accepted if she does. If she doesn't she will be healthier, but nervous and unsure of what her new friends will think. Christy is offered a cigarette and has to decide to have one or not.

In the short term, what would the outcome be if Christy doesn't have a cigarette?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the short term, what would the outcome be if Christy does have a cigarette?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Christy doesn't have a cigarette?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

In the long term, what would the outcome be if Christy does have a cigarette?

-3   -2   -1   0   1   2   3
Terrible   Nothing   Great

……
………………………………………………………..

If you were Christy, how likely would you be to smoke a cigarette?

     0   1   2   3   4   5   6
extremely   moderately   somewhat   not sure   somewhat   moderately   extremely
unlikely   unlikely   unlikely   likely   likely   likely