A MULTIPLE-PROCESS MODEL FOR STUDYING POWER AND RISK TAKING CONNECTION

By
XIAOJING XU

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Department of Psychology

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To the Faculty of Washington State University:

The members of the Committee appointed to examine the dissertation of XIAOJING XU find it satisfactory and recommend that it be accepted.

_________________________________
Craig D. Parks, Ph.D., Chair

_________________________________
Jeffrey A. Joireman, Ph.D.

_________________________________
Eugene A. Ross, Ph.D.
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A MULTIPLE-PROCESS MODEL FOR STUDYING POWER AND RISK TAKING CONNECTION

Abstract

by Xiaojing Xu, Ph.D.
Washington State University
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Chair: Craig D. Parks

The current study was designed with three aims: 1) to test a proposed causal relationship between power and risk taking; 2) to investigate the mechanisms by fitting a Multiple-Process Model which included both motivation-focused and cognition-focused explanations of the effect, and by respectively manipulating two potential mediators – regulatory focus and construal level; 3) to explore whether individual differences on chronic regulatory focus, power motivation, and risk taking propensity had any impact on the processes. A series of five experiments were conducted with 690 undergraduate students at Washington State University. Results showed that high-power priming did not increase risk taking, nor did low-power priming decrease risk taking. Risk taking propensity predicted risk taking in most cases. Path modeling based on the Multiple-Process Model showed that risk taking propensity led to a higher likelihood of adopting promotion-focused strategies and boosted confidence which in turn increased risk taking. Experiment 3 suggested an interaction between power priming and the regulatory focus cues embedded in the risk taking task. Low power-primed people took more risks with a prevention cue in particular. However, when regulatory focus was separately primed in Experiment 4, the interaction changed. Low power-primed people took the least amount of risks with a prevention focus in loss-framed situations. Construal level failed to show any sign of mediating the power –
risk taking connection throughout the study, but it interacted with chronic regulatory focus like a moderator: thinking concretely made promotion-focused people take more risks. Risk perceptions were found susceptible to individual differences and temporary cues, but they were neither accurate nor predictive of risk taking behaviors. Having a high risk taking propensity and/or a high power motivation were found to associate with better emotional states, higher sense of control, more confidence, and a larger likelihood of adopting promotion-oriented strategies. Power motivation was also found to interact with power priming to influence risk taking: when the primed power status matched participants’ needs for power, they took more risks. Implications for improving the theoretical model of power and risk taking and applying the results to social dilemma and medical decision studies were discussed.
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CONNECTION

INTRODUCTION

People make decisions all the time. Where to travel for the upcoming vacation? Which stocks to purchase from the market? Or even simpler, which dishes to order from a new menu? Most decisions involve some level of risks because there are always uncertainties or chances built in every situation. You may order a new dish called Ishi Yaki 'Buri Bop' and completely love or hate it later. But unfortunately, most bad decisions can cost us more than a dish’s money. For people holding positions with a lot of power and responsibilities, the stake is usually higher: a lot of people and resources will be involved in their decisions and they need to make this type of decisions very frequently. The disaster happened in Fukushima nuclear power plant is a sad example of bad decisions. Instead of flooding the entire power plant, the government chose to cool down the reactor by watering it with a very low probability of hitting the target—a risky choice, which however would also be the best solution if succeeded. Now as we all know, this plan turned out to be a failure and it incurred a series of negative outcomes on a global scale.

Taking risk is not necessarily a good or a bad thing by itself. The truth is, under great uncertainty, nothing guarantees a best decision. That being said, there has been some evidence showing that high-power people are generally more willing to take risks (Galinsky et al., 2003; Anderson & Galinsky, 2006). And this is probably not good news because people don’t want to put their future in the hands of gamblers.
Purpose of My Study

The purpose of my study is to test the proposed link between power and risk taking, and to further investigate the mechanisms underneath. I developed a Multiple-Process Model which includes most of the elements that have been used to explain the power-risk taking connection in previous research, such as regulatory focus, optimistic risk perception. And I added construal level – the first variable from a purely cognitive perspective – as another potential mediator to complement the existing framework which is heavily based on motivation. I tested the fit of the model and the validity of its key elements by both correlational and experimental studies.

Power and the Effects of Power

Power is typically conceptualized as a person’s ability to exercise control over valuable resources, rewards, punishments, and outcomes of others (Keltner et al., 2003). Power is a basic and common social phenomenon. It resides in almost every social unit and social relationship. Power is reported to have some dramatic effects on how people feel, think and behave. As early as in 1970s, Kipnis (1972; 1976) has published a few articles supporting the thesis “power corrupts” based on the results from a set of empirical studies. Along this line, research showed that power increased the tendency to stereotype people (Goodwin et al., 2000), to favor in-group members and discriminate out-group members (Brewer, 1979; Mullen, Brown, & Smith, 1992), to engage in sexual harassment (Bargh et al., 1995), and to see people as tools (Gruenfeld et al., 2008). People with power were also better liars (Carney, 2010). At the same time, there was another stream of research arguing that power did not necessarily corrupt people so much as enhance the expression of trait-consistent behaviors (Chen et al., 2001; Keltner et al., 2003). So for people who mainly care about maintaining good relationships with others, having power can only make them more caring and even more altruistic. Moreover, power is believed to associate
with a general approach tendency, and the effect is not limited to the fields of social interactions. Researchers found that assigning people to a manager role can make them take more actions (Anderson & Berdahl, 2002; Galinsky, Gruenfeld, & Magee, 2003), be more optimistic and willing to take risks in various types of tasks (Anderson & Galinsky, 2006, Huang, et al., 2011). Furthermore, people with power were also reported as being better at getting the gist of (Smith & Trope, 2006) and persisting on tasks (Guinote, 2007).

To my understanding, most previous research has been organized around four aspects of having power, a nonconscious approach (as opposed to inhibition) tendency; more concentration on satisfying self needs; decreased attention to social information; and increased abstractedness in processing information. These consequences are not mutually exclusive. They usually work at the same time, but maybe not in the same direction.

**Power and Risk Taking**

Risk is probably one of the most commonly used but vaguely defined concepts in both daily life and academic research. That being said, most people agree that risks have two essential features (Jaeger et al., 2001). Firstly, there has to be uncertainty involved. In other words, no one would be able to tell whether a particular result would necessarily follow a particular action or event. Second, the outcomes should have values to people. People who take risks are making themselves vulnerable. In most cases, it is also true that the most desirable outcome is associated with the smallest probability and/or the severest negative outcome that may happen.

Risk preference indicates the level at which people are willing to expose themselves to risks in order to get a desirable outcome. Risk preference is usually a stable personal propensity with some variations across domains (Jackson et al., 1972; Nicholson et al., 2005; Blais et al., 2005). However, it can still be temporarily influenced by situational factors. Most famously,
Tversky and Kahneman (1981) found that people are more willing to take risks when the outcomes are framed as losses as opposed to gains.

The idea of having more power or a stronger sense of power leads to higher-level risk taking may sound intuitively correct because of the nature of power. Firstly, when people have power, they have more control over others, over the processes in which things are being handled, over the distribution of resources/rewards, which means, they do have better chance to influence the results. And even if they fail, they should be better able to recover than average people. Secondly, people with power are often responsible for delivering visions, encouraging subordinates, and boosting the morale. As a result, they may be more used to focusing on the positive side.

There has been some research demonstrating a link between the sense of power and risk taking. Galinsky et al., (2003) found participants who possessed structural power in a group task more likely to take cards in a simulated game of blackjack than those who lacked power. Besides, having a higher general sense of power or being primed with power led to optimistic perceptions of risks demonstrated by increased focus on the possible rewards accompanied with underestimated probability of potential losses (Anderson & Galinsky, 2006). Maner and his colleagues (2007) later tested individuals’ power motivation and status quo as moderators of the effect of power, and they found that for people with a high power motivation but an unstable status quo, having power actually reduced risk taking. This finding supported Keltner et al.’s (2003) argument for *stability of power relations* as one major moderator of the effects of power.
**Regulatory Focus as a Motivation-Focused Mediator**

**Regulatory focus theory**

Regulatory focus theory posits two separate and independent self-regulatory orientations of goal pursuit: prevention and promotion (Higgins, 1997). People with a strong prevention focus emphasize safety, responsibility, and security needs, and therefore see goals as oughts – things that they ought to do. People with a strong promotion focus, on the other hand, emphasize hopes, accomplishments, and growth needs, and therefore see goals as ideals. Each regulatory orientation has its own preferred strategy. The prevention focus is associated with a vigilant strategy which “ensures the absence of negatives (non-losses) and ensures against the presence of negatives (losses)” (Higgins, 2011).

Regulatory focus, according to Higgins (2011), can be either chronic or temporary. Temporary regulatory focus can be primed or induced by various tasks (Freitas & Higgins, 2002; Förster & Higgins, 2005). Studying regulatory focus has become more and more popular in communication, marketing, and health behavior research.

**Power and regulatory focus**

Although it makes good sense to argue for a connection between having power and being more motivated by the ideals/being more likely to adopt the eager strategy, there has not been much research dedicated to this subject. The most relevant study was conducted by Willis & Rodríguez-Bailón (2012) where they found that powerful people showed greater accessibility to their ideals than powerless people did, but only when the power was legitimate. The
illegitimately powerful were actually more ready to think about their oughts or obligations compared with their powerless counterparts.

There were, however, some studies on the relationship between having power and an intensified approach tendency. For example, Smith & Bargh (2008) primed participants with high power or low power by asking them to recall an incident when they had control over others or others had control over them, and then asked them to complete the BAS/BIS scale, to finish a task where they needed to move an object towards or away from a stimulus, or, to set a chair for another participant. Results showed that high power-primed people scored higher on the BAS scale, moved the object towards the stimulus more quickly, and set the chair closer to their own chairs. All of these indicated an intensified approach tendency.¹

**Regulatory focus and risk taking**

There have been a few studies addressing the relationship between regulatory focus and risk taking. Crowe & Higgins (1997) found that people primed with a promotion focus were more likely to have false alarms on a recognition memory test modeled after the signal detection paradigm, which indicated a risky processing style. Higgins (2002) discovered that people with a promotion focus valued attainment decisions more highly than avoidance decisions. Promotion-focused people were also found to make riskier decisions when purchasing new products (Herzenstein, Posavac, & Brakus, 2007) and driving (Hamstra et al., 2011). And the result seemed to spread within groups whose members possessed the same type of regulatory focus (Levine et al., 2000; Florack & Hartmann, 2007).

¹ In some other research, the approach tendency was operationally defined as more like a promotion focus, although Higgins articulated that regulatory focus and approach/inhibition tendency are conceptually distinct.
The complete link from power to regulatory focus and then to risk taking has however never been investigated to the best of my knowledge.

**Construal Level as a Cognition-Focused Mediator**

*Construals and Construal Level Theory*

Construal is a social psychological term that is used to describe how people perceive, comprehend, and interpret the world around them. Construals come from reality, but they are not necessarily representative of it. Low-level construals are relatively unstructured, contextualized representations which include subordinate and incidental features of events. High-level construals, in contrast, are schematic, decontextualized representations which extract the core features from all information (Trope, Liberman, & Wakslak, 2007). An action, when defined with high-level construals, focuses on the goal of the action and the desirability of the end state. It answers the question “why to do it”. When an action is defined with its details, it focuses on the means and the feasibility of attaining the goal, answering the question “how to do it”.

Construal level indicates the level of abstraction in information processing. High-level construals are associated with abstract thinking while low-level construals are associated with concrete thinking.

Construal level, like other cognitive styles, is believed to be stable within an individual. It is usually measured with visual stimuli, such as in Global-local Focus Test (Kimchi & Palmer, 1982), Gestalt Completion Task (GCT; Eckstrom, French, Harman, & Derman, 1976), Left Visual Field Bias Task (Smith & Trope, 2006), or linguistic usage patterns (Coenen, Hedebouw, & Semin, 2006), such as in Category Inclusiveness Task (CIT, Isen & Daubman, 1984) and Behavior Identification Form (BIF; Vallacher & Wegner, 1989). However, it is important to note that construal level can also be temporarily manipulated in the lab (e.g., Sanna et al., 2010).
Construal Level Theory (CLT) is a framework that links various types of psychological distances with the level of abstraction. It states that the more psychologically distant an event or behavior is, the more it will be represented at higher levels of abstraction. CLT first started with temporal distance, and then extended to other types of distances, such as spatial distance, social distance, and probability (Trope & Liberman, 2010).

**Power and construal level**

Based on Construal Level Theory, Smith and Galinsky (2010) proposed a connection between having power and adopting higher-level construals. Their argument was that when someone stands at the top of a power pyramid, there are very few people around, and the large social distance would make the person think more abstractly than others. This explanation is consistent with early findings such as high-power people being more likely to use stereotype information in social cognition (Fiske, 1993) and it also received good empirical support from Smith and Trope (2006) – in a series of six experiments, power priming consistently led to abstract information processing.

**Construal level and risk taking**

Conceptually speaking, if a high construal level is indeed associated with abstract, goal-focused thinking, it should lead to increased attention to desirable outcomes and negligence of all probability components in risk perception, which in turn leads to higher-level risk taking. On the other hand, if a low construal level entails a focus on details, on the feasibility of actions, it should lead to increased attention to the probability components in risk perception, which in turn leads to a relatively predictable level of risk taking. Yet as obvious as it seems, there was very little research well designed to investigate the relationship between construal level and risk taking.
Risk Perception as a Second-Order Mediator

Risk Perception

Risk perception is an important concept in the risk management literature. It usually refers to how people perceive the probability and the severity of a potential hazard. Risk perceptions are not exact representative of the objective properties of the hazard. Actually, they rarely are. There have been a few factors identified to influence risk perceptions. For example, cognitive heuristics, such as the availability heuristic and the belief in the law of small numbers, were found to influence how often people think an unfortunate accident would happen (Slovic, et al., 2000; Simon, Houghton & Aquino, 2000). Contextual cues, such as the way in which the probability information is presented (e.g., in frequencies, in charts, or using a balls-in-a-urn scenario; Tyszka & Przemyslaw, 2011) and the risk target (self, family members, or people in general; Sjöberg, 2000), could also shape the estimated probability. Besides, people’s values were believed to shape how they rate different types of risks. For example, Cultural Theory proposes that individuals choose what to fear in order to support their way of life (i.e., a socially viable combination of cultural biases and social relationships). As a result, people with different values (egalitarianism, collectivism, individualism, or hierarchism) are afraid of different things among new technologies, the environment, wars, social deviance, and economic troubles (Wildavsky, 1990). Moreover, lay people’s risk perceptions were found to be influenced mainly by the dreadfulness of the outcomes, whereas experts’ perceptions were found to be influenced mainly by facts such as the estimated probability (Slovic, 1987). Personal factors such as gender and risk sensitivity were also believed to influence risk taking, and so were cultural differences (e.g., the cushion theory; Weber & Hsee, 1998).
**Risk perception as a second-order mediator**

Although risk perceptions do not accurately reflect the nature of the risks, they could still be an antecedent of people’s behaviors. Keltner, Gruenfeld, and Anderson (2003) proposed a Power-Approach Theory, which explains the effect of power through a provoked approach tendency. Although partially shaped by the Regulatory Focus Theory, Keltner et al.’s theory accounts for emotional, cognitive, and behavioral factors at the same time. One contribution of the Power-Approach Theory is that it disentangles risk perceptions into four clear aspects: the intensity/likelihood of the positive/negative outcomes, and that it connects them with emotional and motivational factors. The theory proposes that since power is always associated with reward-rich environments and freedom, it triggers approach-related positive affect, increased attention to rewards, which in turn leads to automatic cognition such as boosted values of the positives and underestimated likelihood of the negatives, and these later contribute to disinhibited behaviors (Keltner, et al., 2003). See Figure 1.

Anderson and Galinsky (2006) referred to the “automatic cognition” as “optimism”. And they believed that “optimism” fully mediated the effects of power – just like what Power-Approach Theory indicated, the emotional/motivational, cognitive, and behavioral consequences happened in a consecutive manner. To support their argument, Anderson and Galinsky (2006) asked participants to imagine a romance encounter and then to rate how likely they were to engage in unprotected sex and how dangerous they perceived it would be. Results showed that people primed with power indicated higher likelihood of having sex, and they had more optimistic perceptions about having unprotected sex than participants primed with low power. In addition, optimistic perceptions of risk predicted the likelihood of having sex after controlling for power, and the effect of power on the likelihood of having sex reduced to being non-significant.
after the risk perceptions were taken into account. Inesi (2010) later conducted a study to investigate the relationship of power and loss aversion. By directly measuring the perceived values of gains and losses, she demonstrated that it was a reduced sense of anticipated losses (instead of an intensified sense of anticipated gains) that made powerful people less loss-averse.

Despite the supporting evidence, there are two major theoretical issues with considering risk perception as a mediator. First, as the Theory of Planned Behavior (Ajzen, 2002) suggests, perceived behavioral control (or self-efficacy) may influence the relationship between risk perceptions and risk taking. People who believe that they have more control over the situation may be more willing to take risks. The second issue is self-regulation. Steinberg (2004) found that it was not the age differences in risk perception or appraisal, but the age differences in self-regulation-related psychosocial factors that led to the greater propensity of adolescents taking more risks. With the same reasoning, gamblers may perceive the gambles as highly risky but still cannot resist the temptation to play.

Because risk perception has been such an important element in previous research, I kept it in my study while acknowledging its potential shortcomings.

**Specific Aims of the Current Study**

This study had a series of related goals. First, I wanted to test whether having power indeed increases risk taking, and how people in the control condition and the low-power condition would do as comparisons. There has been very little research on how lacking power would impact risk taking.

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2 However, this argument is based on the assumption that risk perceptions are independent of perceived self-control, and the assumption has only received limited support from research with a psychometric model of risk perception.
Second, I developed a Multiple-Process Model of Power and Risk Taking (see Figure 2) based on previous findings and theoretical reasoning. By fitting path models, I would like to identify the key factors/mechanisms underlying the proposed power-risk taking connection, assuming there was one.

Third, as a complementary approach, I would like to further test the validity of regulatory focus and construal level as mediators of the power – risk taking connection by directly manipulating each of them and observing whether/how the level of risk taking would change.

Lastly, I would like to explore how individual differences on chronic regulatory focus, power motivation, and risk taking propensity would interact with those variables in the model and/or shape the model differently.

OVERVIEW OF EXPERIMENTS

A series of five experiments were conducted in this study. In Experiment 1, I manipulated the sense of power and investigated its effects on risk taking using behaviors in the Columbia Card Task (Figner et al., 2009) as the dependent measure. Hypothesized mediators including regulatory focus, construal level, sense of control, and risk perceptions were measured, and the Multiple-Process Model was fit. Experiment 2 shared a similar structure with Experiment 1 with a few improvements: a simpler risk taking task was used; some proposed mediators were measured differently; and participants’ chronic regulatory focus, power motivation and risk taking propensity were also measured as potential influencing factors. The goal was to verify the findings in Experiment 1 and to test how individual differences might have played a role. In Experiment 3, I manipulated regulatory focus after power priming, using a task revised after Crowe and Higgins’ (1997) method. The experiment was designed to test regulatory focus as a potential mediator between power and risking taking. If regulatory focus is indeed the major
mediator, then the effect of power priming would be overridden by the effect of regulatory focus manipulation. Experiment 4 was similar with Experiment 3 expect that regulatory focus was manipulated in a more explicit way and that a different risk taking task was used. The goal was to replicate the findings of Experiment 3. Experiment 5 was designed to test construal level as another potential mediator between power and risk taking. Construal level was manipulated after power priming. The experiment shared exactly the same logic with Experiment 3 and 4. In Experiment 2, 4 and 5, individual difference information was also collected and used in analyses.

EXPERIMENT 1

Methods

Participants

Participants were 263 undergraduates at Washington State University (138 female, 121 males, 4 unindicated) who received course credit for participation. Most of them (71.9%) were between 18 and 20 years old.  

Materials

Power priming. Dubois et al.’s (2010) power priming task was used in this experiment. All participants were instructed to “read about the role below and try to vividly imagine what it would be like to be in this role (i.e., how you would feel, think, and act).” And then, participants in the high-power condition read,

“As a boss, you are in charge of directing your subordinates in creating different products and managing work teams. You decide how to structure the process of creating products and the standards by which the work done by your employees is to be evaluated. As the

3 Due to missing data on different questions/scales throughout the entire experiment, different analyses were based on different sample sizes.
boss, you have complete control over the instructions you give your employees. In addition, you also evaluate the employees at the end of each month in a private questionnaire – that is, the employees never see your evaluation. The employees have no opportunity to evaluate you. You monetarily reward the employees.”

In contrast, participants in the low-power condition read,

“As an employee, you are responsible for carrying out the orders of the boss in creating different products. The boss decides how to structure the process of creating these products and the standards by which your work is to be evaluated. As the employee, you must follow the instructions of the boss. In addition, you are evaluated by the boss each month, and this evaluation will be private, that is, you will not see your boss’s evaluation of you. This evaluation will help determine the bonus reward you get. You have no opportunity to evaluate your boss. You receive a monetary reward by the boss.”

The method has been proven effective in creating a high-power or a low-power mindset (Dubois et al., 2010; Rucker, et al., 2011). In this experiment, I also required that participants write down the most prominent thoughts, feelings, and acts that came to their mind after reading the scenario, to make sure that they did spend some time going through the priming process. In the baseline condition, participants were asked to write down their daily routine in 5-6 sentences.

After completing the power priming task, all participants were asked to rate, on a 9-point scale (0 = not at all; 8 = very much), how “tense” “calm” “happy” “discouraged” “confident” and “in control” they felt “at this moment”. These questions served two purposes: to check whether the power manipulation worked, and to collect information for further exploring whether emotions (positive vs. negative; approach-related vs. avoidance-related) might have functioned as additional influencing factors.
Risk taking measure. The Columbia Card Task (CCT; Figner et al., 2009) was used to measure risk taking in this experiment. CCT is a multiple-round card game. At the start of each round, the participant was presented with 32 face-down cards on a computer screen. During the round, participants could turn over as many cards as they wanted by clicking the mouse. There were two types of cards. A gain card equaled a specified positive amount and the chance to continue flipping over other cards, while a loss card equaled a specified subtraction from the previous payoff and the end of the round. Loss cards were placed completely at random in each round. Rounds varied in the following parameters: number of loss card(s) (1 or 3), gain amount (10 or 30 points per gain card), and loss amount (-250 or -750 points). With a $2 \times 2 \times 2$ factorial design, there were 8 combinations of different levels of the parameters. Each combination showed up 3 times in the card game, resulting in 24 rounds in total. It was randomly selected which combination appeared at which round. Appendix A-1 shows a screen shot of the game.

There are three versions of the game: hot, cold, and warm. In the hot version, the card immediately turns over after the participant click it, showing whether it is a gain card (with a smiling face on it) or a loss card (with a sad face on it), and the game ends as soon as a loss card is hit. In the cold version, participants decide how many cards to turn over before the round begins by entering a number. The program then tells them what the payoff is in this round. In this experiment, the warm version was used, where participants could choose which card(s) to turn over but the cards did not immediately turn over until participants had chosen all cards and clicked “stop”. The cards then turned over one by one in the chosen order and the round stopped when all chosen cards were flipped over or a loss card showed up. An advantage of the warm version is that the result will not be influenced by where the loss cards are, as opposed to what would happen in the hot version.
**Regulatory focus measure.** Sassenberg et al.’s (2007) regulatory strategy measure was used to identify participants’ state regulatory focus. Participants were presented with 4 strategy dyads: taking risks – acting cautiously, striving for security – striving for success, try something new – follow rules, and act thoroughly – act superficially. One end was a promotion-orientated strategy while the other end was a prevention-oriented strategy. Participants were asked to choose a number between 1 and 9, with 1 indicating that they would, at this moment, most certainly adopt the behavioral strategy at the left end, 9 indicating that they would most certainly choose the behavioral strategy at the right end, and 5 indicating that they would use the two strategies equally likely. The scores on item 1, 3, and 4 were reversed, so higher scores indicated promotion-oriented strategies while lower scores indicated prevention-oriented strategies. Sassenberg at al. (2009) reported an average internal consistency of .73 (range: .64 < α < .82) in their studies.

In this experiment, the internal consistency of the measure was not desirable, Cronbach’s α = .45. So I only kept the two items that were relatively highly correlated: item 1 “acting cautiously – taking risks” and item 3 “follow rules – try something new” (Cronbach’s α = .67) and used their average score as an indicator of participants’ regulatory strategy.

**Construal level measure.** The Behavior Identification Form (BIF; Vallacher & Wegner, 1989) was used to measure construal level. As we know, behaviors can be identified at varying levels of abstractness. High-level identifications address why the action is performed, while low-level identifications address how the action is performed. In the BIF, a list of 25 behaviors was presented with two identifications – a low-level one and a high-level one for each of them. For example, “Making a list” was followed by two identifications: “Getting organized” and “Writing

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4 Sassenberg et al.’s (2007) regulatory strategy measurement was proven to be more sensitive as a state measure than RFQ, Lockwood’s measure in two pilot studies that I conducted.
things down”. Participants chose the identification that they thought better fit the behavior. See Appendix A-2 for the full list of the behaviors in the BIF. A participant’s score on the BIF was the number of high-level identifications chosen. The larger the number is, the more abstractly the person thinks. The BIF has been a successful measure in various studies (Vallacher & Wegner, 1989; Smith & Trope, 2006).

**Risk perception measure.** I designed the questionnaire which was used to assess participants’ risk perceptions of the CCT. The questionnaire had four aspects: intensity of gains (2 questions), likelihood of gains (1 question), intensity of losses (2 questions), and likelihood of losses (1 question). For example, “How beneficial you think it would be to your outcome if you get a gain card”, “How good you felt when you hit a gain card”, and “If asked to play the game again, how likely it would be that all cards that you choose in one round are gain cards?” Participants were asked to answer each question on an 8-point scale (0 = not at all; 7 = very much). See Appendix A-3 for the full list of questions.

**Procedure**

All materials were set up on Survey Monkey except for the CCT which was made available by the Center for the Decision Sciences at Columbia University via a guest portal. After participants entered the lab, the experimenter seated each of them in a semi-isolated cubicle with a computer showing the experiment website. Participants were randomly assigned to one of the three conditions – high-power, low-power, and the baseline. After completing the power priming task, they worked through a series of questions including the manipulation check, the construal level measure, the regulatory strategy measure, and were then led to the CCT. After
completing the CCT\textsuperscript{5}, participants completed the risk perception measure. This was the end of Experiment 1. Participants then moved on to finish Experiment 3\textsuperscript{6}, entered some demographic information, and were debriefed and thanked.

**Results**

*Manipulation check*

Independent-sample $t$-tests were conducted on the feeling of *in control* and other emotions. Contrary to what I expected, there were no differences between the high power-primed group and the low power-primed group on the feeling of *in control*, but both groups ($M_H = 4.71$, $SD_H = 1.38$; $M_L = 4.74$, $SD_L = 1.48$) scored higher than the baseline group ($M = 3.92$, $SD = 1.08$), $t_{\text{combined}} (64) = 2.85$, $p = .006$\textsuperscript{7}.

Only one significant difference on emotional reactions was found: high power-primed people felt happier ($M = 6.21$, $SD = 1.83$) than low power-primed people ($M = 5.61$, $SD = 1.64$), $t (183) = -2.29$, $p = .023$.

*Risk taking*

An independent-sample $t$ test was conducted on the average number of cards taken\textsuperscript{8}, and no significant difference was found between the high power-primed ($M = 9.17$, $SD = 3.60$) and the low power-primed group ($M = 9.78$, $SD = 4.63$), $t (109) = 0.76$, $p = .447$. There were no significant differences between any group and the baseline group ($M = 9.65$, $SD = 3.58$) either.

\textsuperscript{5} The Columbia Card Task came with a 29-item post-experiment questionnaire which could not be detached, so the participants also completed that questionnaire before moving on to the risk perception measurement. That default questionnaire mainly asked the participants whether their decision making process in the CCT was affective or deliberative.

\textsuperscript{6} The experiments were combined to save time and participants.

\textsuperscript{7} This was totally unexpected and inconsistent with what I found in my pilot study. See Appendix B for more details about the pilot study.

\textsuperscript{8} There were 24 rounds in total but I only used results in the 16 rounds where each parameter combination appeared for the second or the third time. I did this to eliminate the effect of novelty.
A repeated-measure ANOVA was then conducted using the task parameters (i.e., the probability of hitting a loss card, the gain amount, and the loss amount) as within-subjects factors and power priming (high vs. low) as the between-subject factor. Results showed that every parameter had a significant impact on the number of cards taken, $F_{\text{LossPr}}(1,109) = 205.02$, $F_{\text{GainAm}}(1,109) = 27.37$, $F_{\text{LossAm}}(1,109) = 57.66$, all $p$'s < .001. Power priming, however, had no main effect, $F(1, 109) = 0.58$, $p = .447$, and it did not interact with any of the task parameters either.

**Risk perception**

An exploratory factor analysis was conducted on the risk perception measure. Factors were extracted based on their eigenvalues (> 1), and Varimax rotation was applied. There were two factors extracted from the measure. Both items measuring the *perceived intensity of gains* (item 1 focusing on cognition & item 2 focusing on emotion) loaded highly on the first factor at .79 and .80, while the item (item 4), which measured the *perceived intensity of losses* (cognition-focused) loaded highly on the second factor at .75. Neither of the items which measured the *perceived likelihood* had a high loading on either of the factors (< .60). Based on the results and theoretical concerns, I used the average score on item 1 and 2 as the indicator of *perceived intensity of gains*, the score on item 4 as the indicator of *perceived intensity of losses*, and I kept item 3 and 6 to indicate the *perceived likelihood of gains* and *losses* respectively.

Independent-sample *t* tests were conducted to compare the high power-primed group with the low power-primed group on different aspects of risk perception, and no significant differences were found.

Pearson correlations were calculated between every aspect of risk perception and the average number of cards taken in the CCT. *Perceived likelihood of losses* was found to be the only variable that correlated with risk taking significantly, $r = .345$, $p < .001$. 

**Regulatory strategy**

Independent-sample *t* tests were conducted to investigate whether high power-primed people were more likely to adopt promotion-oriented strategies than low power-primed people and no significant differences were found. On the indicator formed by item 1 and item 3, $M_H = 5.54$, $SD_H = 1.69$; $M_L = 5.65$, $SD_L = 1.65$; $t (109) = -0.44$, $p = .663$. And the results on other single items were similar. All mean differences were within 0.3 on the original 9-point scale.

A Pearson correlation was calculated between regulatory strategy and the number of cards taken in the CCT. There was no significant correlation, $r = .10$, $p = .241$.

**Construal level**

An independent-sample *t* test was conducted on participants’ responses to the BIF, and result, once again, showed no difference between the high power-primed group ($M = 15.38$, $SD = 4.53$) and the low power-primed group ($M = 15.06$, $SD = 5.02$), $t (141) = 0.40$, $p = .693$.

A Pearson correlation was also calculated between the BIF score and the average number of cards taken in the CCT and there was hardly any correlation, $r = .01$, $p = .884$.

**The Multiple-Process Model**

The analyses so far have failed to show any of the patterns that were expected from the effect of power priming. It might be that the power priming was not strong enough\(^9\), or that there were indeed no relationships at all, or the relationships were just so complex that only a holistic modeling approach could capture the essences. In order to test the last possibility, I used path modeling to fit the proposed Multiple-Process Model with MLM estimator in Mplus 5. However, I did this in more of an explorative mood considering all the null results that I got above.

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\(^9\) I doubt this possibility because the priming worked well in my pilot study. And I discussed this more deeply in the general discussions section.
Data from 119 participants (66 females, 53 males) were used in this analysis. Power was a categorical variable, represented by the power-priming condition (0 – low power; 2 – high power); sense of control came from a self-reported state measure with higher scores indicating higher sense of control; regulatory focus was estimated by the average score of item 1 and 3 on the regulatory strategy measure with higher scores indicating preferences for promotion-oriented strategies; construal level was measured by the BIF, with higher scores indicating an abstract way of thinking. Risk taking, in this experiment, was measured by the average number of cards taken in the CCT with higher numbers indicating more risk taking. Risk perception was, as explained in the Materials and Risk perception measures sections, measured from four aspects – intensity/likelihood of gains and intensity/likelihood of losses. I tested each of them as a proxy of risk perception in path modeling respectively.

Overall model fit was assessed with the following indicators: chi-square test ($\chi^2$), the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR). The $\chi^2$ test is a measure of absolute fit which assesses the degree to which the model estimates reproduce the observed variance-covariance matrix with a significant $\chi^2$ indicating a poor match. SRMR is also a measure of absolute fit, and it is calculated as the standardized difference between the observed correlations and the model-predicted correlations. It ranges from 0.0 to 1.0 with smaller values indicating better fit. RMSEA is similar to SRMR, but it includes a parsimony correction for degree of freedom. Values close to 0.0 suggest good fit. CFI is a measure of relative fit that compares the estimated model to a null model (i.e. a model stating no relationship among variables) with possible values ranging from

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10 The sample size dropped significantly for three reasons: first, the missing data problem – every data line had to be complete to be kept; second, 17 participants got none of the comprehension check questions correct in the CCT, so I had to discard their data; third, I decided to only use data from the high power-primed and the low power-primed condition due to the uncertain nature of the baseline condition.
0.0 to 1.0 and higher values implying good fit. These particular indicators were selected because they assess the model fit from different perspectives (Brown, 2006).

The global fit of a model is generally considered to be acceptable when the following criteria are met: a non-significant chi-square test, CFI > 0.90 (with > 0.95 being ideal), RMSEA < 0.08, and SRMR < 0.06 (Brown, 2006; Kline, 2010).

The global fit of the model (with perceived intensity of gains as the proxy of risk perception) was decent, $\chi^2 (3) = 2.052 (p = .5616)$, CFI = 1.000, RMSEA = .000, SRMR = .025. However, there was only one significant path – the one from construal level to perceived intensity of gains $\beta = -.216, p = .012$, meaning that one standard deviation’s increase in construal level would result in 0.216 standard deviation’s decrease in perceived intensity of gains. No modification indices exceeded 3.84 – the amount of change which should happen to $\chi^2$ with dropping one degree of freedom, meaning that the model fit cannot be significantly improved by adding any paths.

I then fit the model with the other three aspects of risk perception, one at a time. It turned out that all models fit well on a global level, but the significant paths changed. With perceived intensity of losses or perceived likelihood of gains as the proxy of risk perception, no paths were significant. With perceived likelihood of losses as the proxy, risk perception showed a significant impact on risk taking, $\beta = .347, p < .001$, meaning that one standard deviation’s increase in perceived likelihood of losses would result in 0.347 standard deviation’s increase in the average number of cards taken in the CCT. And the global fit seemed a bit better, $\chi^2 (3) = 0.119 (p = .9895)$, CFI = 1.000, RMSEA = .000, SRMR = .007. In all four models, regulatory strategy and construal level were related at about 0.14, all p’s were around .056.
Model revisions

Because of the exploratory nature of the above analyses as well as the relatively small sample size, I decided not to dig too deeply into the results but to summarize the findings with a parsimonious yet complete model\textsuperscript{11}, in the hope of offering some insights for future research. See Figure 3. The solid paths were findings in this experiment. The dashed paths were added to make the model complete. The global fit of this model was decent: $\chi^2 (3) = 0.984 \ (p = .8052)$, CFI = 1.000, RMSEA = .000, SRMR = .020. And no more paths were suggested according to the modification indices.

Discussion

It was certainly disappointing that power priming failed to show any direct impact on risk taking (in the CCT) or any of the proposed mediators: regulatory focus, construal level, and risk perception. Path modeling, however, showed that there were some connections among construal level, sense of control, risk perception, and risk taking in the CCT.

When taking a closer look at the path coefficients, I found some of them consistent with what the theories would predict while some of them not. For example, it makes sense that a lower sense of control associated with a higher perceived likelihood of losses; but why did perceived likelihood of losses related to risk taking positively? And why did a high construal level lead to low perceived intensity of gains? For the first question, I think the answer may have to do with the order in which the variables were measured. Because all risk perception items were measured after the CCT, it was possible that those participants who took more risks got

\textsuperscript{11} By “complete model”, I mean a model that still contains an independent variable and a dependent variable that are relevant to the core hypothesis – a connection between power and risk taking.
more penalties and therefore rated the likelihood of losses as higher in retrospective thoughts. As for the second question, I cannot think of a good explanation so far.

It is also worth noting that although power remained ineffective in the model, sense of control, which is conceptually highly related to power, played a role in the model. This makes me wonder whether it is the sense of control, as a stable personality trait, that matters. Moreover, could other personality traits be directly or indirectly contributing to the results? Was regulatory strategy not showing any effect because it was moderated by other factors such as the framing of the risk taking task?

In the following experiments, some of these questions were addressed, and some changes were also made to make the power priming stronger and a few of the measures more sensitive.

**EXPERIMENT 2**

Experiment 2 shared the same idea and almost the same structure with Experiment 1. But it was more carefully executed with a double-priming task, a simpler dependent measure, a different measure for construal level, and a larger sample. Moreover, it measured participants’ chronic regulatory focus, power motivation, and risk taking propensity at the very beginning, and these trait variables were taken into account in further analyses including path modeling.

**Methods**

**Participants**

Participants were 335 undergraduates at Washington State University (201 females, 134 males) who received course credit for participation. Most of them (78.2%) were between 18 and 20 years old.
Materials

Power priming. A double-priming task was used. The first step was Galinsky et al.’s (2003) recall task. In high power-primed condition, participants read:

“Please recall a particular incident in which you had power over another individual or individuals. By power, we mean a situation in which someone had control over your ability to get something you wanted, or was in a position to evaluate you. Please describe this situation in which you did not have power—what happened, what you did, how you felt, etc.”

In low power-primed condition, participants were asked to recall “a particular incident in which someone else had power over you” and to describe the situation. Galinsky’s task has been one of the most commonly used power priming methods so far.

In the second step, Dubois et al.’s (2010) power priming task, as described in Experiment 1, was used. Participants in the baseline condition, once again, were asked to write done their daily routine in 5-6 sentences.

Participants then completed the manipulation check and emotional status measure as described in Experiment 1.

Risk taking measure. Because of the concerning fact that nearly half of the people who tried CCT failed to get all of the 4 comprehension questions correct, I decided to use a much simpler but also very popular paradigm to measure risk taking in this experiment – an imaginary gamble game. Participants read,

“If you were given 12 dollars as a reward after the experiment session, and then you had a chance to play a gamble in which you have a 40% chance to win. If you win the gamble, you
can double the money which you put into the gamble; if you lose, you will lose the money that
you gambled. Based on the simulation, how much do you want to gamble?"

Participants were asked to write down a number between 0 and 12, so the measure can be
considered as a 13-point scale with larger numbers indicating higher-level risk taking.

**Regulatory focus measure.** Regulatory focus, as a temporary state, was measured in the
same way as in Experiment 1 with Sassenberg et al.’s (2007) regulatory strategy measurement.
Once again, I used the average score on item 1 and item 3 as the indicator of participants’
regulatory strategy. Scores ranged from 1 to 9 with higher numbers indicating a promotion focus.
Cronbach’s α = .77.

**Construal level measure.** Category Inclusiveness Task (CIT; Isen & Daubman, 1984;
Smith & Trope 2006) was used to measure participants’ construal level. Participants were asked
to indicate, on a 1-10 scale, to what degree atypical exemplars (e.g., camel) were good members
of given a category (e.g., vehicle). People who think more abstractly (i.e., using higher-level
constraints) are expected to give higher ratings. The task is presented in Appendix A-4. There
were four categories (vehicle, vegetable, clothes, and furniture) in the task and each category was
actually paired with one strong, one intermediate, and one weak exemplar. But only the ratings
of the weak (i.e., atypical) exemplars were averaged to form the score.

**Risk perception measure.** Measuring risk perception is a little challenging in this
experiment for two reasons. First, it was difficult to ask about the four aspects of risk perception
– perceived intensity/likelihood of gains/losses based on such a simple task; second, risk
perception needed to be measured before the task and the measurement has to be brief enough
not to influence the actual decision. As a result, I decided to measure participants’ sense of being
*confident* and *in control* at the moment right before the risk taking task. Participants were asked
to answer the following two questions on a 7-point scale (1 = not at all; 7 = very much): “Are you confident that you can do well on the next task?” and “Do you feel that you will be in control for the next task?” Confident and in control were correlated at .460, p < .001. Although the correlation was significant, it was still too small to justify any attempt to combine the two items. So I chose to use confident for further analyses because it was conceptually closer to risk perception. That being said, confident was still not equivalent to risk perception, so I was very careful when analyzing the data and presenting the results.

**Individual difference measures.** Three individual difference variables were measured: chronic regulatory focus, power motivation, and risk taking propensity. See Appendix A-5.

*Regulatory focus,* as a stable trait, was measured with Regulatory Focus Questionnaire (RFQ; Higgins et al., 2001) which assessed individuals’ subjective history of their promotion and prevention success with 11 items. The promotion subscale contained six items (e.g., “How often have you accomplished things that got you ‘psyched’ to work even harder?”), and the prevention subscale contained five items (e.g., “Not being careful enough has gotten me into trouble at times.”). Participants responded to all items on a 5-point scale (1 = never or seldom; 5 = very often), and got a score (a sum) on each subscale. In this experiment, the internal consistency for the promotion subscale was a bit low (Cronbach’s α = .51) compared with what Higgins et al. (2001) reported: Cronbach’s α = .73. The internal consistency for the prevention scale was decent, Cronbach’s α = .79, and it was very close to the value (.80) which Higgins et al. (2001) reported. Because RFQ is by far the most established scale for measuring regulatory focus, I decided to use the scores without any trimming or modification in order to maintain the integrity of the concept. The score on the prevention subscale was then subtracted from the score on the
promotion subscale, creating a difference score as the final score on RFQ, with higher numbers indicating a promotion focus and lower numbers indicating a prevention focus.

*Power motivation* was measured using the dominance and status-aspiration subscales of the Achievement Motivation Scale (Cassidy & Lynn, 1989; Maner et al., 2007). Participants rated how much they agreed with statements such as “*I find satisfaction in having influence over others*”, “*I think I would enjoy having authority over other people*” on a 7-point scale (1 = strongly disagree, 7 = strongly agree). Higher numbers indicated a higher power motivation. There were 18 items in total, Cronbach’s α = .86.

*Risk taking propensity* was measured using selected items from the risk taking questionnaire developed by the Decision Science Research Center at Columbia University. Participants rated how much they agreed with statements such as “*I usually take more risks compared to other people in my everyday life*”, “*I often position myself in an exciting situation on purpose*” on a 7-point scale (1 = strongly disagree, 7 = strongly agree). Higher numbers indicated a higher-level risk taking propensity. There were 9 items in total, Cronbach’s α = .75.

*Procedure*

Participants entered the lab and finished all the questionnaires and tasks on a computer. Although the priming task and several measures were changed, the entire procedure remained quite similar to that of Experiment 1 except that participants completed the three individual difference measures before getting power priming. And as in Experiment 1, participants were randomly assigned to the high-power, low-power, and the baseline condition. After this experiment, participants in the earlier sessions moved on to finish Experiment 4 and participants in the late sessions moved on to finish Experiment 5. They were then debriefed and thanked.
Results

Manipulation check

Independent-sample *t*-tests were conducted on feelings of *in control* and other emotions. Contrary to my expectations, there were no differences between the high power-primed group \((M = 6.15, SD = 2.01)\) and the low power-primed group \((M = 5.99, SD = 2.07)\) on feelings of *in control*, and neither of the groups differed from the baseline group \((M = 6.49, SD = 1.89)\).

There were no significant differences on emotional reactions between the high power-primed and the low power-primed group either. High power-primed people \((M = 6.27, SD = 1.81)\) might feel happier than low power-primed people \((M = 5.81, SD = 1.88)\), but the difference was marginal, \(t(245) = 1.97, p = .051\).

Risk taking

An independent-sample *t* test was conducted between the high power-primed and the low power-primed group on the amount of money gambled, and no significant difference was found \((M_H = 6.84, SD_H = 3.75; M_L = 6.37, SD_L = 3.63)\), \(t(245) = 1.01, p = .315\). And neither of the groups was found differing from the baseline group \((M = 6.35, SD = 3.86)\).

Risk perception

Independent-sample *t* tests were conducted to compare the high power-primed group with the low power-primed group on feelings of *confident*, and the difference was negligible – less than 0.1 on the original scale.

The Pearson correlation between *confident* and the amount of money gambled was \(.126, p = .021, n = 334\).
**Regulatory strategy**

An independent-sample t test was conducted, and no difference was found between the high power-primed group ($M = 5.61, SD = 1.67$) and the low power-primed group ($M = 5.65, SD = 1.82$) on the regulatory strategy measure, $t (245) = 0.17, p = .866$.

The Pearson correlation between regulatory strategy and the gambled money was $r = .165, p = .002, n = 335$.

**Construal level**

An independent-sample t test was conducted on participants’ prototypicality ratings in the CIT, and no difference was found between the high power-primed group ($M = 20.51, SD = 6.88$) and the low power-primed group ($M = 21.72, SD = 6.23$), $t (245) = -1.46, p = .147$.

The Pearson correlation between construal level and the gambled money was $r = .026, p = .633, n = 335$.

**The Multiple-Process Model**

As in Experiment 1, no proposed mediators differed as a result of power priming, and none of them correlated with risk taking at a meaningful level. Despite these concerning facts, I fit the proposed Multiple-Process Model to the data collected from 247 participants with MLM estimator in Mplus 5. This time, *risk perception* was substituted with ratings on *confident*.

The same indicators and criteria as those in Experiment 1 were used to assess the global fit. In this experiment, the global fit of the Multiple-Process Model was good. $\chi^2 (3) = 0.544 (p = .9092), CFI = 1.000, RMSEA = .000, SRMR = .009$. There were three significant paths clustering on the bottom part of the model (See Figure 4): one from *regulatory strategy* to *confidence*, $\beta = .213, p = .001$; one from *confidence* to *risk taking*, $\beta = .147, p = .022$; and the
other from regulatory strategy to risk taking directly, $\beta = .162$, $p = .008$. That means, one standard deviation’s increase in regulatory strategy would lead to 0.193 standard deviation’s increase in risk taking both directly and through boosted confidence. Construal level might be negatively related to confidence, $\beta = -.106$, $p = .072$, but it was not significant. No paths were suggested to be added to the model according to the modification indices.

**Model revisions**

Because Experiment 1 and 2 shared the same theoretical structure, it became a natural question to ask whether the modified model from Experiment 1 fit the data of Experiment 2. To find the answer, I fit the revised model from Experiment 1 (as presented in Figure 3) to the data of Experiment 2. But I had to alter the model a little bit before the fitting because risk perception was measured differently in the two experiments. The global fit of the new model (See Figure 5) was good, $\chi^2 (2) = 0.296$ ($p = .8626$), CFI = 1.000, RMSEA = .000, SRMR = .009. Confidence showed a significant impact on risk taking, $\beta = .185$, $p = .004$. Sense of control and construal level might have some connection with confidence, but not significantly.

Based on the findings with the original Multiple-Process Model, I then added regulatory strategy into the model (see Figure 6) in the hope of creating a better but still simple model. The global fit was decent, $\chi^2 (3) = 0.472$ ($p = .9249$), CFI = 1.000, RMSEA = .000, SRMR = .010, but it was not significantly better than the previous model in Figure 5, $T (1) = 0.175$, $p > .05$.

**Models with individual difference variables**

To test how individual differences impact the power – risk taking system was another important aim of Experiment 2. At the first step, I added all three individual difference variables – chronic regulatory focus (RFQ), power motivation (PowerMt), and risk taking propensity
(RTP) – to the Multiple-Process Model and allowed each of them to influence every variable in the original model except for power, which represented the priming condition. I also correlated the three individual difference variables with each other. The model turned out to have a good global fit, $\chi^2 (3) = 0.131 (p = .9879)$, CFI = 1.000, RMSEA = .000, SRMR = .003, and several paths from the individual variables were significant: RFQ had a negative impact on construal level, $\beta = -.175$, $p = .022$; PowerMt had a positive impact on sense of control, $\beta = .135$, $p = .026$; most prominently, RTP had a positive impact on regulatory strategy, $\beta = .602$, $p < .001$, meaning that a one standard deviation increase in risk taking propensity would lead to 0.602 standard deviation increase in the likelihood of applying promotion-oriented strategies. These three individual difference variables were also found to significantly correlate with each other: RFQ correlated with RTP at .446 ($p < .001$), with PowerMt at .275 ($p < .001$); PowerMt correlated with RTP at .257 ($p < .001$). Among all the paths existing in the original model, only confidence remained to have a significant impact on risk taking, $\beta = -.145$, $p = .030$. The path coefficient from regulatory strategy to risk taking dropped from .147 ($p = .008$) to .128 ($p = .120$), and the path coefficient from regulatory strategy to confidence dropped from .213 ($p = .001$) to .075 ($p = .472$). See Figure 7.

A modified model was fit after trimming off most insignificant paths. The fit indices suggested an acceptable global fit: $\chi^2 (16) = 21.428 (p = .1626)$, CFI = .965, RMSEA = .037, SRMR = .049. The modification indices suggested a path from RTP to confidence which would bring down the $\chi^2$ value by 8.29. After adding this path to the model, all fit indices showed some signs of improvement: $\chi^2 (15) = 13.156 (p = .5902)$, CFI = 1.000, RMSEA = .000, SRMR = .036. The model fit significantly better than the previous one, $T (1) = 6.76$, $p < .05$. The path
coefficients suggested that \textit{RTP} had indirect impact on \textit{risk taking} via \textit{regulatory strategy} and \textit{confidence}. See Figure 8 for detailed information about the model.

Because the connections revolving around \textit{risk taking} was the focus of the study, I then fit a model (Figure 9) with this part only. The global fit was decent, $\chi^2 (2) = 0.821$ ($p = .6634$), CFI = 1.000, RMSEA = .000, SRMR = .015, and it did not differ from the fit of the model in Figure 8, $T (14) = 1.57$, $p > .05$. This model suggested that \textit{RTP} had a positive impact on \textit{regulatory strategy}, $\beta = .611$, $p < .001$, and \textit{regulatory strategy} in turn had a positive impact on \textit{risk taking}, $\beta = .162$, $p = .007$. At the same time, \textit{RTP} also had a positive impact on \textit{confidence}, $\beta = .286$, $p < .001$, and \textit{confidence} in turn had a positive impact on \textit{risk taking}, $\beta = .149$, $p = .019$. So with both routes taken into account, a one standard deviation increase in \textit{RTP} led to a 0.14 standard deviation increase in the \textit{risk taking} via both \textit{regulatory strategy} and \textit{confidence}.

\textit{Individual differences}

As suggested by the results of path modeling, the effects of individual differences, such as that of RTP, might be so strong that they prevented power priming from coming into play. Besides, it was also possible that individual differences interacted with power priming to impact risk taking and other related variables. In order to test this possibility, I used a tertile split to get the upper one-third and the lower one-third participants on each individual difference variable and conducted a set of 2 (high vs. low power priming) $\times$ 2 (high vs. low level of the individual difference variable) ANOVAs on risk taking (i.e., the amount of gambled money in this case) as well as all proposed mediators: regulatory strategy, construal level, and confidence.

Consistent with what the model suggested, RTP showed a significant main effect on risk taking, $F (1,154) = 6.44$, $p = .012$, regulatory strategy, $F (1,154) = 106.59$, $p < .001$, and confidence, $F (1,154) = 13.35$, $p < .001$. Refer to Table 1 for means and standard deviations of
each group on every variable. No interactions, however, were significant. Similarly, RFQ was
found to have a significant main effect on risk taking, \( F(1,164) = 4.87, p = .029 \), regulatory
strategy, \( F(1,164) = 21.78, p < .001 \), confidence, \( F(1,164) = 9.51, p = .002 \), AND construal
level, \( F(1,164) = 4.75, p = .031 \). On a less than significant level, RFQ seemed to interact with
power priming to influence regulatory strategy, \( F(1,164) = 3.19, p = .076 \). A closer examination
of the result suggested that promotion-focused people were more likely to apply promotion-
oriented strategies than prevention-focused people, and this tendency was the most prominent in
the low power-primed condition. Power motivation, like its fellow variables, had a significant
main effect on regulatory strategy, \( F(1,159) = 5.38, p = .022 \), and confidence, \( F(1,159) = 9.05, 
p = .003 \), but it had no effect on risk taking per se, \( F(1,159) = .01, p = .931 \).

In order to further explore how these individual difference variables exerted their
influences and whether they interfered with power priming, I conducted another set of 2 × 2
ANOVAs on the variables used in the manipulation check and the emotional status measure,
which included the feeling of *in control*, *tense*, *calm*, *happy*, and *discouraged*. Independent-
sample *t* tests were also conducted to test simple effects when needed. According to Power-
Approach Theory, elevated power increases the experience of positive moods and emotions
while reduced power increases the experience of negative moods and emotions (Keltner et al.,
2003). But Smith and Trope (2006) proposed, from a Construal Level Theory point of view, that
power priming should have no impact on emotions, no matter they are positive emotions (*calm*,
*happy*) or negative emotions (*tense*, *discouraged*), and no matter they are promotion-related
emotions (*happy*, *discouraged*) or prevention-related emotions (*tense*, *calm*). Both arguments
above were supported by their related studies. In this experiment (as well as in Experiment 1),
power priming failed to induce any differences in feelings of *in control*. There was, however, a
tendency showing that high power-primed people felt happier than low power-primed people. These individual difference variables may be the key to explaining the discrepancies in findings.

*Power motivation* turned out to affect feelings of *in control* and every emotional variable. High power-motivation people felt more *in control* ($M = 6.52, SD = 2.06$) than low power motivation people ($M = 5.73, SD = 2.00$), $F (1, 159) = 6.55, p = .011$, and they scored significantly higher on positive emotions (*calm, happy*) and lower on negative emotions (*tense, discouraged*), $0.00 < p < .013$. Independent-sample *t* tests showed that having power versus no power made a difference on participants’ feelings of *happy, discouraged*, and *tense* ONLY when they had high power motivations. *Risk taking propensity* turned out to affect feelings of *in control* and every prevention-focused emotional variable. High-RTP people felt more *in control* ($M = 6.48, SD = 2.01$) than low-RTP people ($M = 5.54, SD = 2.01$), $F (1, 154) = 8.79, p = .001$, and they scored significantly higher on *calm* ($p = .001$) and significantly lower on *tense* ($p = .003$) than their counterparts. Independent-sample *t* tests showed that only low-RTP people felt *happier* in high power-primed condition than in low power-primed condition. *Regulatory focus* had no effect on feelings of *in control*, but it had a significant main effect on every negative emotion. Promotion-focused people scored lower than prevention-focused people on both *tense* ($p = .001$) and *discouraged* ($p = .041$). Independent-sample *t* tests showed that only prevention-focused people felt *happier* in high power-primed condition than in low power-primed condition, $t (88) = -2.02, p = .046$.

**Discussion**

In Experiment 2, the same research question as that in Experiment 1 was tested with a double-priming task of power, a simpler measurement of risk taking, a new way to quantify construal level, and *confidence* as a substitute for *risk perception*. Unfortunately, participants’
reports on the feelings of in control still did not differ between the high power-primed and the low power-primed condition, and the two groups did not differ in risk taking, confidence, regulatory strategy, or construal level either. These disappointing results however, may be explained by individual differences in risk taking propensity, regulatory focus, and power motivation. As shown in Figure 8 and 9, having a higher risk taking propensity led to a higher likelihood of applying promotion-oriented strategies and higher confidence, both of which in turn led to higher-level risk taking.

The results of ANOVAs and t tests with those individual difference variables further showed that having a high power motivation, a dispositional preference for taking risks, and a predominant motivation for achieving desirable outcomes (instead of avoiding undesirable outcomes) contributed to a better emotional state in general. They also made people feel more in control, confident, and more likely to adopt promotion-oriented strategies. Having a higher-level risk taking propensity and a promotion focus, in addition, may help buffer the negative effect of having no power on happiness.

The finding that only participants who had high power motivation felt less happy, more discouraged and tenser in low power-primed condition than in high power-primed condition may suggest that power priming was only effective to people who care about power. What makes the finding even more complicated but interesting is that despite the differences in emotional status, people with high power motivation did NOT feel less control in the low power-primed condition than in the high power-primed condition. It was possible that those high power-motivation people were actively working against the situation of having no power through some unknown psychological processes, and therefore the differences were only observed in emotions which
were more on the level of automatic reflections rather than in feelings of control which required more appraisive efforts.

Because studying emotions was not part of the original plan and there has not been any theory ready to apply, I decided to leave the question open as for how emotional states impact risk taking and other related variables, even though this direction shows clear potential.

**EXPERIMENT 3**

Experiment 3 was designed to further test, in an empirical manner, whether regulatory focus, as a state variable, functions as a mediator of the proposed power-risk taking connection. In this experiment, participants’ regulatory focus was manipulated after power priming. The logic was that if regulatory focus was the major mediator, then its impact would override that of power when being manipulated separately.  

**Method**

**Participants**

Participants were 144 undergraduates at Washington State University (75 female, 69 males) who received course credit for participation. Most of them (74.3%) were between 18 and 20 years old. These participants were actually a portion of the people who participated in Experiment 1. They started Experiment 3 right after finishing Experiment 1. In fact, with the assumption that the effect of power priming would remain after Experiment 1, I did not prime power status in Experiment 3.

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12 It would have been ideal if power did show impact on risk taking in Experiment 1 or 2, but it was unknown before conducting Experiment 3.
**Materials**

**Regulatory focus manipulation.** The regulatory focus manipulation task was strictly modeled after the one that Crowe and Higgins (1997) used in their second study. Their task effectively induced the expected behavior patterns in a signal detection task. In this task, participants were asked to make an investment decision for a large food company. They read,

“Now imagine that you are a vice president of a large food company. Your company has been the market leader for many years but is recently having some financial troubles. Since you own shares and stock options of this company your own interest is directly associated with the financial status of the company. Moreover, your career is tightly connected with the performance of your company too.

A consulting firm proposed a plan which includes purchase of a new production line and acquisition of a few local small food providers. This plan, if implemented, would cost about $8,000,000. ($8,000,000 is definitely not a small amount of money considering the current financial status of your company.) This plan has a 50-50 chance to succeed or fail.”

In promotion-focus condition, participants then read “If your company invests in the plan and the plan implementation is successful, your company will gain a profit increase instead of facing financial difficulties”, while in prevention-focus condition, participants then read “If your company invests in the plan, as long as the plan doesn’t fail, your company won’t face financial difficulties and will gain a profit increase instead.”

**Risk taking measure.** Risk taking was measured with two questions. The first question asked participants to rate, on a 7-point scale (1 = strongly oppose; 7 = strongly agree), “How will you support this plan before the board of directors?” The second question asked “If you could
partially implement this plan rather than investing the entire $8,000,000, how much would you invest?” Participants entered a number between 0 and 8,000,000 as their answer.

In order to make these two dependent variables (later referred to as support and investment) comparable in magnitude, z scores were computed and used in further analyzes. Participants’ responses to these two questions correlated at .51, p < .001

**Risk perception measure.** As in Experiment 1, risk perception was measured from four aspects, which were perceived intensity of positive outcomes, perceived likelihood of positive outcomes, perceived intensity of negative outcomes, and perceived likelihood of negative outcomes. Each aspect was measured with three questions, and participants answered each question on an 8-point scale. Sample questions were “How beneficial it would be to the company if the plan succeeds after being implemented? 0 – not at all; 7 – extremely beneficial” “To what extent are you confident that the plan will succeed if being implemented? 0 – not at all; 7 – very much”. See Appendix A-6 for the complete list of questions.

An exploratory factor analysis was conducted on the risk perception measure (12 items). Factors were extracted based on their eigenvalues (>1) with Varimax rotation applied. Four factors emerged in the result as expected. See Table 2 for complete factor loadings. Three items measuring the perceived likelihood of positive outcomes loaded highly on the first factor at .85, .79, and .89 (Cronbach’s α = .86). So I used the average of the three items to represent the level of this aspect. Likewise, three items measuring the perceived likelihood of negative outcomes loaded highly on the second factor at .83, .82, and .87 (Cronbach’s α = .86). So I used the average of these three items to represent the level of their corresponding aspect. The three items measuring the perceived intensity of negative outcomes loaded decently on the third factor at .67, .83, and .82 (Cronbach’s α = .72). To be conservative, I used the average of the last two items as
the proxy of the corresponding aspect. Lastly, the three items measuring *perceived intensity of negative outcomes* loaded on the fourth factor at .89, .90, and 0.30 (Cronbach’s $\alpha = 0.67$). I therefore took out the last item and used only the first two to indicate the level of this aspect. Cronbach’s $\alpha$ increased to .79 after dropping the last item.

**Procedure**

Participants were handed the investment task which contained the regulatory focus manipulation, the risk taking task, and the risk perception measure in printed papers after finishing Experiment 1. Unknown to the participants, half of them were assigned to the promotion-focus condition while the other half were assigned to the prevention-focus condition through random selection. Participants completed the task, and were debriefed and thanked.

**Results**

**Risk taking**

A 2 (high vs. low power) × 2 (promotion vs. prevention focus) ANOVA was conducted on participants’ *support* for the plan (in z scores). Results showed that neither power status nor regulatory focus had a significant main effect, and the interaction was non-significant either, $F(1,1) = 1.34, p = .250$. To a less than significant extent, the group means fell into a pattern suggesting that high-power people took more risks when the task induced a promotion focus while low-power people took more risks when the task induced a prevention focus. See Figure 10.

A 2 (high vs. low power) × 2 (promotion vs. prevention focus) ANOVA was also conducted on participants’ *investments* in the plan (in z scores). Results showed that power, once again, had no main effect on risk taking. Regulatory focus manipulation, however, had a
marginal effect, $F(1,1) = 2.88, p = .093$. Participants were willing to invest more money when primed with a prevention focus ($M_z = -.178$) than primed with a promotion focus ($M_z = -.169$). The interaction between power and regulatory focus fell into the same pattern as that on support, but the interaction was not significant, $F(1,1) = 0.82, p = .368$.

**Risk perception**

A set of 2 (high vs. low power) × 2 (promotion vs. prevention focus) ANOVAs were conducted on each aspect of participants’ risk perceptions. Results showed that there was a significant interaction between power manipulation and regulatory focus on the perceived likelihood of negative outcomes: low power-primed people estimated the likelihood of failure as lower when a prevention focus was induced while high power-primed people estimated the likelihood of failure as lower when a promotion focus was induced, $F(1,1) = 4.22, p = .043$. See Figure 11. No main effects or other interactions were significant.

**Discussion**

Because of the relatively small sample size in Experiment 3, it is hard to make any definitive conclusions on how power priming and regulatory focus influence risk taking and risk perception. It is possible that high-power priming elicited promotion-oriented strategies while low-power priming elicited prevention-oriented strategies, and these strategies were later strengthened by the well-matched regulatory focus that was induced by the risk taking task. As a result, whenever there was a fit, participants took more risks to meet their needs: either to get to the desirable state (in the case of promotion-focused people) or to avoid the undesirable state (in the case of prevention-focused people). This finding, if true, would be consistent with what Regulatory Fit Theory suggests – a match between regulatory focus and regulatory strategy intensifies responses (Higgins, 2000, 2005). The results of this experiment also showed, on a
statistically significant level, that participants tended to underestimate the likelihood of negative outcomes in regulatory fit situations. However, with the design of this experiment it cannot be said for sure whether the risk perception aspect moderated the effect on risk taking.

One problem with this experiment is that it should have been built on a set of significant results in experiment 1, such as power having an impact on risk taking and regulatory strategy having at least some connections with power and risk taking, but as we know, no such results were obtained in Experiment 1. One possibility is that the measures of regulatory strategy and risk taking in Experiment 1 were simply too flawed to pick up on any actual differences; another possibility is that the impact of power priming on risk taking and regulatory strategy functions in an intricate and maybe under-consciousness way. However, it is also possible that the findings in Experiment 3 were achieved because of some extraneous variables, including individual differences that were not taken into account.

**EXPERIMENT 4**

Experiment 4 was designed as a conceptual repetition of Experiment 3 with a few improvements. Like in Experiment 3, power was primed in another experiment (in this case, Experiment 2) that was conducted right before it. Regulatory focus was induced, but not as a part of the risk taking task. It was induced by a standard procedure developed by Freitas & Higgins (2002). The measures for risk taking and risk perception were also changed. In addition, because I was able to measure every participant’s chronic regulatory focus, power motivation, and risk taking propensity in Experiment 2, these pieces of information was also used in data analyses.
Method

Participants

Participants were 169 undergraduates at Washington State University (108 females, 59 males, 2 unindicated) who received course credit for participation. Most of them (80.5%) were between 18 and 20 years old. These participants were a portion of the people recruited for Experiment 2. Participants completed Experiment 4 right after finishing Experiment 2.

Materials

**Regulatory focus manipulation.** Participants were asked to adopt either a promotion-focused or a prevention-focused way of thinking with the following task.

In promotion-focused condition, participants read, “*Now, please take a moment and think about the things you ideally would like to do. In other words, think about the hopes and aspirations that you have. In the space below, please list three (3) hopes or aspirations that you currently have. Also mention, very briefly, how achieving these hopes/aspirations can help you promote or achieve desirable outcomes in your life.*”

In prevention-focused condition, participants read, “*Now, please take a moment and think about the things you think that you ought to do. In other words, think about the duties and obligations that you have to fulfill. In the space below, please list three (3) duties or obligations that you currently have. Also mention, very briefly, how meeting these duties/obligations can help you avoid and prevent undesirable outcomes in your life.*”

This procedure was proven effective in a number of previous studies (Higgins, et al., 1994).
**Emotional status measure.** Participants were asked to rate on a 7-point scale (1 = not at all; 7 = very much) how they felt “at this moment” right after the regulatory focus manipulation. Items included happy, calm, eager to achieve desirable outcomes, vigilant to avoid undesirable outcomes, in control, and confident. This measure was designed for two purposes: first, to work as a tentative manipulation check on the effectiveness of the regulatory focus manipulation\(^{13}\); second, to take into account the possibility of other emotional variables playing a role on any results that could be mistakenly attributed to regulatory focus or the power by regulatory focus interaction.

**Risk taking measure.** The risk taking measure was built on a standard paradigm for studying framing and risk taking. In the task, participants needed to make a set of choices between a certain outcome and an uncertain outcome. For example, participants needed to choose between “getting $10.00 for sure” and “50% chance of getting $20.00 and 50% chance of getting $0”. In this experiment, participants were asked to make their choices on 16 questions which varied in four parameters: framing (gain vs. loss), the expected value in each pair (equal vs. unequal\(^{14}\)), the amount of gain/loss (small vs. moderate), and the risk level (50%-50% vs. 40%-60%). A 2 × 2 × 2 × 2 factorial design was used to create the questions. In administrating, the 8 gain-framed questions were presented first, followed by the 8 loss-framed questions on the next screen. The levels of other parameters varied randomly. See Appendix A-7. Responses were such coded that participants got 1 point every time when they made a risky choice. So a higher score indicated higher-level risk taking.

\(^{13}\) Because there are no quick and unintrusive ways to assess regulatory focus and researchers have different opinions in terms of the need to conduct manipulation check in every case, I decided to run the manipulation check without elevating its result to any definitive conclusions.

\(^{14}\) In gain-framed questions uncertain outcomes had larger expected values, while in loss-framed questions certain outcomes had larger expected values.
**Risk perception measure.** Risk perceptions were measured with two questions: “*How strongly did you feel, across all decisions in general, that you would be lucky if you chose the* probability-based outcome (choice B)?”” and “*How strongly did you feel, across all decisions in general, that bad luck would get to you if you chose the probability-based outcome (choice B)?*” They were later referred to as the *lucky* and the *bad luck* questions. Participants answered the questions on a 7-point scale (1 = *not at all*; 7 = *very much*). Responses to these two questions correlated at -.307 (p < .001). I also created a combined measure which was the average score on question 2 and question 1 (reversed).

**Procedure**

All materials were set up online along with the materials of Experiment 2. Actually, there were six links, each corresponding to a combination of one power priming condition (high, low, or baseline) and one regulatory focus manipulation condition (promotion or prevention). In every session, the experimenter tried to equally distribute participants to the six conditions. Participants completed the task, and were debriefed and thanked.

**Results**

**Emotional status check**

To get clean results, I first chose the data from participants who got no power priming at all (i.e., in the baseline condition) and compared the promotion-focused group with the prevention-focused group on all variables in the emotional status measure using a set of independent-sample t tests. No significant differences were found on any of the variables. I then used all data and conducted a set of 2 (power priming: high vs. low) × 2 (regulatory focus: promotion vs. prevention) ANOVAs. Results showed that promotion focus-primed people felt
more eager ($M = 5.76, SD = 1.48$) than prevention focus-primed people ($M = 5.19, SD = 1.29$), $F(1,104) = 4.95, p = .028$, and the result only held within the high power-primed group, although the interaction between regulatory focus manipulation and power priming was not significant ($p = .197$). The difference on vigilance, on the other hand, was barely noticeable in either group ($D_M < 0.013$).

Results also showed that promotion focus-primed people felt happier ($M_{PM} = 4.91, SD_{PM} = 1.31; M_{PV} = 4.26, SD_{PV} = 1.53; F(1,104) = 5.49, p = .021$), calmer ($M_{PM} = 5.65, SD_{PM} = 1.36; M_{PV} = 4.80, SD_{PV} = 1.69; F(1,104) = 8.21, p = .005$), and more confident ($M_{PM} = 5.59, SD_{PM} = 1.17; M_{PV} = 4.74, SD_{PV} = 1.36; F(1,104) = 11.95, p = .028$) than their counterparts. They might also feel more in control on a less than significant level ($M_{PM} = 5.30, SD_{PM} = 1.45; M_{PV} = 4.78, SD_{PV} = 1.45$), $F(1,104) = 3.36, p = .070$.

**Risk taking**

A repeated-measure ANOVA was conducted on the risk taking scores with framing (gain & loss) as the within-subjects variable, power priming (high vs. low) and regulatory focus manipulation (promotion vs. prevention) as the between-subjects variables. Results showed a significant interaction between power priming and regulatory focus manipulation, $F(1, 104) = 5.64, p = .019$. And the three-way interaction between power, regulatory focus, and framing was close to being significant, $F(1, 104) = 3.06, p = .083$. I therefore conducted two separate ANOVAs for different framing conditions and it turned out that the interaction between power priming and regulatory focus manipulation only existed when the outcomes were framed in losses, $F(1, 104) = 8.76, p = .004$. According to analyses of simple effects, low-power people took more risks ($M = 4.00, SD = 2.21$) in the promotion-focused condition than in the prevention-focused condition ($M = 2.22, SD = 2.39$), $t(53) = -2.86, p = 0.006$. High-power
people took about the same amount of risks in the prevention-focused condition ($M = 3.81, SD = 1.96$) and in the promotion-focused condition ($M = 3.15, SD = 1.95$), $t(51) = 1.23, p = 0.225$. See Figure 12. So the most prominent finding was that low-power people took the least amount of risk (i.e., they would rather accept a certain loss than gambling for a non-loss) when being put into a prevention-focused mindset in a loss-framed risk taking task.

I also examined how the expected value of the uncertain outcome as compared with the value of the certain outcome might have influenced the risk choices. With perfect rationality, participants should have preferred the risky choices in gain-framed questions but the un-risky choices in loss-framed questions in every condition\(^{15}\). This was exactly what I found with a set of paired-sample $t$ tests (all $p$’s < .05) except for the fact that high-power people with a promotion focus were completely indifferent to the inequality of expected values in gain-framed questions, $t(25) = .00, p = 1.000$.

**Risk perception**

\(^2\) (power priming: high vs. low) × 2 (regulatory focus: promotion vs. prevention) ANOVAs were conducted on participants’ risk perceptions (i.e., ratings on both of the questions and the combination measure). No significant results were found.

A set of Pearson correlations showed that among the three indicators of risk perception, the *lucky* measure correlated with risk taking the most, $r = .37, p < .001, n = 169$. The *bad luck measure* hardly related to risk taking at all, $r = -.073, p = .343, n = 169$.

\(^{15}\) The questions were such designed that in gain-framed questions uncertain outcomes had larger expected values, while in loss-framed questions certain outcomes had larger expected values.
Individual differences

Because individual differences on chronic regulatory focus, power motivation, and risk taking propensity were found to influence risk taking in Experiment 2, it became a natural question to ask whether individual differences also impacted the results after manipulating regulatory focus. Three repeated-measure ANOVAs were conducted on the risk taking scores with framing (gain & loss) as the within-subjects variable, power priming (high vs. low), regulatory focus manipulation (promotion vs. prevention), and one of the three individual difference variables (high level vs. low level) as the between-subjects variables. Besides the significant interaction between power priming and regulatory focus manipulation that has been reported in previous analyses, I found, with risk taking propensity, there was a significant main effect of this variable, $F(1, 64) = 4.09, p = .047$. High RTPs took more risks ($M = 7.80, SD = 3.36$) than low RTPs ($M = 5.98, SD = 3.12$). There was also a significant three way interaction between power, risk taking propensity, and framing, $F(1, 64) = 4.53, p = .037$. Most prominently, high RTPs took more risks ($M = 4.83, SD = 2.73$) than low RTPs ($M = 2.67, SD = 1.85$) when primed with low power in gain-framed situations, $t(37) = -2.94, p = .006$. Other comparisons did not reach the significant level. However, please note that the results should be taken with caution because of the relatively small sample size.

With power motivation, there might be a three-way interaction between power, power motivation, and framing, $F(1, 30) = 3.54, p = .065$. On gain-framed questions, the interaction between power and power motivation was significant, $F(1, 60) = 5.07, p = .028$: when primed with high power, high power-motivation people took more risks ($M = 3.00, SD = 2.25$) than low power-motivation people ($M = 2.27, SD = 2.09$); when primed with low power, low power-motivation people took more risks ($M = 4.28, SD = 2.16$) than high power-motivation people ($M$
= 2.76, \(SD = 2.39\)). From another perspective, we could see that low power-motivation people were more responsive to power priming than high power-motivation people. See Figure 13. On loss-framed questions, this interaction was not significant, \(F(1, 64) = 0.17, p = .680\).

With *chronic regulatory focus*, nothing showed up as significant but there might be some interaction between participants’ chronic regulatory focus and manipulated regulatory focus, \(F(1, 57) = 3.28, p = .075\). People with a chronic promotion focus took more risks (\(M = 7.00, SD = 3.66\)) when a promotion focus was induced than when a prevention focus was induced (\(M = 5.82, SD = 2.44\)), while people with a chronic prevention focus took more risks (\(M = 7.06, SD = 3.19\)) when a prevention focus was induced than when a promotion focus was induced (\(M = 5.28, SD = 2.49\)). See Figure 14. Speaking to risk perception, people with a chronic prevention focus generally saw things less negatively (\(M = 4.19, SD = 0.85\)) than people with a chronic promotion focus (\(M = 4.71, SD = 0.83\)) in this experiment, \(F(1, 61) = 5.41, p = .023\).

**Discussion**

The results of this experiment suggest that the way in which power priming and regulatory focus manipulation influence risk taking is probably more complicated than expected. For example, the finding that people in the low-power prevention-focused condition took *less* amount of risk than people in any of its adjacent cell is quite the opposite from what I expected based on the findings of Experiment 3. I suspect it may have to do with the type of framing because this finding only held in loss-framed situations. Assuming that the finding is reflective of the truth, we may actually be able to make sense of it: because low-power people have less control over things, when they are motivated to prevent negative outcomes from happening, it is wiser to choose a certain but smaller loss; if they choose the risky option and have no control, they may end up with losing more.
What makes the story more completed is that participants’ individual differences on risk taking propensity, power motivation, and chronic regulatory focus are also joining in the processes. For example, people with high risk taking propensity take more risks than people with low risk taking propensity, and this tendency is the strongest in low-power gain-framed situations. Looked from another angle, this result may be suggesting high-power priming and loss framing as strong situational factors to override the effect of risk taking propensity. Another informative finding is that power priming status and power motivation interact to influence risk taking in gain-framed (but not loss-framed) situations. In other words, people may be more comfortable with taking risks when their power status matches their needs for power. I think it would be interesting to test whether being primed with a low-power status would actually discourage high power-motivation people taking from taking actions, including taking risks, when the outcomes are loss-framed. With participants’ chronic regulatory focus, I got a similar pattern suggesting that participants take more risks when their chronic regulatory focus matches the imposed regulatory focus. This is probably not a surprising finding considering what Regulatory Fit Theory has stated. However, the finding that either a chronic or a state promotion focus associates with negative risk perception more than a prevention focus does is very much unexpected. And the finding becomes even more puzzling considering my other findings which show that people with a state promotion focus feel more eager, happier, calmer, more confident, and marginally more in control than their counterparts. I suspect it to be good evidence that risk taking decisions are hardly based on risk perception or rationality alone, and that motivational and emotional factors may impact risk taking without a necessary change in cognition.

Although more questions than I expected arise with the findings of Experiment 4, it is encouraging to see some similar results with that of Experiment 2 – this experiment is after all an
extension of Experiment 2 to some extent. The major finding from Experiment 2 was that having a high risk taking propensity increases risk taking indirectly through greater likelihood of adopting promotion-oriented strategies and boosted confidence. In this experiment, I confirmed the effect of risk taking propensity on risk taking and further discovered that power priming and gain-loss framing play a role in determining the degree to which risk taking propensity could impact the results. In the meantime, the results of this experiment provide some validation for the statement of regulatory focus as an important antecedent of risk taking. Last but not the least, we now know that when predicting risk taking, people’s chronic regulatory focus should also be taken into account along with situational factors such as power status and gain-loss framing because these factors can interact.

EXPERIMENT 5

Experiment 5 was designed to serve an important purpose of the entire study which was to investigate whether construal level functions as a mediator of the proposed power – risk taking connection. As you may recall, nothing turned out to support this proposition in either Experiment 1 or 2. So in this experiment, construal level was empirically manipulated rather than measured after power priming in order to better reveal the mechanism. This experiment shared the same logic with Experiment 3 and 4, and therefore the procedures were quite similar.

Method

Participants

Participants were 258 undergraduates at Washington State University (150 females, 108 males) who received course credit for participation. Most of them (74.8%) were between 18 and 20 years old. These participants were actually a portion of the people recruited for Experiment 2. Participants completed Experiment 5 right after finishing Experiment 2.
**Materials**

**Construal level manipulation.** A high construal level was primed by asking a series of “why” questions while a low construal level was primed by asking a series of “how” questions about the same physical health topic (Freitas, et al., 2004; Sanna, et al., 2009).

In the high construal level condition, participants saw on the top of the computer screen “Why do I maintain good physical health?” and on the bottom of the screen “Maintain good physical health.” The question and the statement were connected by four vertically aligned text boxes with upward-facing arrows labeled “why”. Participants filled in the boxes starting at the bottom and working up to the top. This procedure was expected to activate high construal level mindsets.

In the low construal level condition, participants saw on the top of the computer screen “Maintain good physical health.” and on the bottom of the screen “How do I maintain good physical health?” Between the statement and the question were also four vertically aligned boxes but with downward-facing arrows labeled “how”. Subjects filled in these boxes starting at the top and working down to the bottom. This procedure was expected to activate low construal level mindsets. See Appendix C.

**Construal level manipulation check.** The manipulation task was modeled after the global-local focus test (Kimchi & Palmer, 1982) and one of its recent versions (Ijzerman & Semin, 2009). There were 7 trials. In each trials, participants were presented with a target object, such as a triangle (global pattern) made up of three smaller triangles (local property), and were asked to judge which of the two alternative figures provided below was more similar to the target object. In this example, the two alternative figures could be a square made up of four triangles (same local property) or a triangle made up of three squares (same global pattern).
Participants received 1 point every time when they chose the figure which shared the same global pattern with the target object and received 0 point for choosing the other figure. As a result, participants could get from 0 to 7 points in this task, with a higher number indicating a higher construal level.

![Target Object](image)

**Emotional status measure.** Same as that in Experiment 4.

**Risk taking measure.** Same as that in Experiment 4.

**Risk perception measure.** Same as that in Experiment 4. Responses to the *lucky* and the *bad luck* questions correlated at -0.240 (*p* < .001). I created a combined measure which was the average of the rating on question 2 and the reversed rating on question 1.

**Procedure**

All materials were set up online along with the materials of Experiment 2. There were five links, four for all combinations of power priming condition (high vs. low) and construal level manipulation condition (high vs. low), and one for a pure baseline condition – no power priming and no construal level manipulation. In every session, the experimenter tried to equally distribute participants to the five conditions. Participants completed the task, and were debriefed and thanked.
Results

Manipulation check

A 2 (power priming: high vs. low) × 2 (construal level: high vs. low) ANOVA was conducted on participants’ scores on the global-local perception task, but no significant main effects or interactions were found. Actually, the means in all conditions were quite close (4.55 < M < 4.93).16

An interesting thing was that participants’ scores were also not related to the ones that they got from the Category Inclusiveness Task which was conducted right after power priming but before construal level manipulation, $r = .048$, $p = .470$, $n = 231$.

Emotional status

A set of 2 (power priming: high vs. low) × 2 (construal level: high vs. low) ANOVAs were conducted on all variables in the emotional status measure. Among all results, only one stood out as significant, and that was the interaction between power priming and construal level manipulation on the feeling of in control, $F(1, 227) = 6.25$, $p = .013$. People primed with low power felt more in control ($M = 5.27$, $SD = 1.32$) when put into a high-construal level mindset than in a low-construal level mindset ($M = 4.80$, $SD = 1.48$). People primed with high power, on the other hand, felt more in control ($M = 5.07$, $SD = 1.53$) when put into a low-construal level mindset than in a high-construal level mindset ($M = 4.60$, $SD = 1.41$). But the mean differences were small. See Figure 15.

16 This result raised an important question: did the manipulation work? The answer is, unfortunately, I am not sure. No researchers who used the “why” vs. “how” task have done manipulation checks of this kind. Instead, they did content analysis to participants’ answers just to make sure that they followed the instruction. With this criterion, my manipulation was successful. As a result, I do not want to nullify the findings in this experiment, however, I want the readers to take the findings with cautions.
Risk taking

A repeated-measure ANOVA was conducted on the risk taking scores with framing (gain & loss) as the within-subjects variable, power priming (high vs. low) and construal level manipulation (high vs. low) as the between-subjects variables. Results suggested a marginal main effect of construal level, $F(1, 227) = 3.11, p = .079$, and a possible interaction between construal level and framing, $p = .180$. I therefore conducted two separate ANOVAs for the two framing conditions and it turned out that construal level only had a significant main effect on risk taking in loss-framed situations, $F(1, 227) = 5.00, p = .026$, not in gain-framed situations, $F(1, 227) = 0.09, p = .761$. When facing loss-framed questions, people primed with a low construal level took more risks ($M = 3.72, SD = 2.25$) than people primed with a high construal level ($M = 3.08, SD = 2.15$).

Risk perception

2 (power priming: high vs. low) × 2 (construal level: high vs. low) ANOVAs were conducted on participants’ risk perception (i.e., scores on the lucky and the bad luck questions separately). The results showed a significant interaction for the bad luck question, $F(1, 227) = 7.92, p = .005$. People primed with low power estimated the likelihood of getting negative outcome as larger ($M = 4.63, SD = 1.35$) when put into a high-construal level mindset than in a low-construal level mindset ($M = 4.09, SD = 1.39$). People primed with high power, on the other hand, estimated the likelihood of getting negative outcome as larger ($M = 4.54, SD = 1.11$) when put into a low-construal level mindset than in a high-construal level mindset ($M = 4.06, SD = 1.54$). But the mean differences were not large. See Figure 16.
A set of Pearson correlations showed that both the *lucky* measure and the *bad luck* measure correlated with gain-framed risk taking \( (r = .35 & -.32) \) more than they did with loss-framed risk taking \( (r = .13 & -.19) \), but none of the correlations were high.

**Individual differences**

Three repeated-measure ANOVAs were conducted on the risk taking scores with framing (gain & loss) as the within-subjects variable, power priming (high vs. low), construal level manipulation (high vs. low), and one of the three individual difference variables (high level vs. low level) as the between-subjects variables. With risk taking propensity, I found a significant main effect of this variable, \( F(1, 145) = 7.73, p = .006 \), as well as a significant interaction between construal level and risk taking propensity, \( F(1, 145) = 5.66, p = .019 \), and a significant interaction between framing and risk taking propensity, \( F(1, 145) = 9.56, p = .002 \). Further analyses showed that in gain-framed situations, high RTPs took significantly more risks than low RTPs, but only when a low construal level was primed, \( t(80) = -4.721, p < .001 \). See Figure 17. In loss-framed situations, the effect of risk taking propensity disappeared. High power-primed people took more risks than low power-primed people, \( F(1, 149) = 4.64, p = .033 \), and low construal level-primed people might take more risks than high construal level-primed people, \( F(1, 145) = 3.22, p = .075 \). In terms of risk perception, high RTPs thought more positively than low RTPs did in general, \( F(1, 145) = 6.11, p = .015 \).

Participants’ *chronic regulatory focus* was also found to have a significant main effect, \( F(1, 151) = 11.41, p = .001 \), and a significant interaction with construal level on risk taking, \( F(1, 151) = 6.19, p = .014 \). Further analyses showed that people with a chronic promotion focus took significantly more risks than people with a chronic prevention focus, but only when a low construal level was primed, \( t(73) = -3.90, p < .001 \). See Figure 18. In terms of risk perception,
people with a chronic promotion focus thought more positively (but not less negatively) than
people with a chronic prevention focus, $F (1, 151) = 12.43, p = .001$.

With power motivation, no main effects or interactions turned out to be significant.

**Discussion**

This experiment provides some preliminary evidence supporting the role of construal
level in risk taking. For example, it shows that when facing potential losses, people with a low
construal level were more willing to gamble (instead of accepting a certain loss) than people with
a high construal level. It could be because that when someone looks at the details of a certain
loss, the loss becomes more painful and unbearable. Moreover, the results suggest that a high
construal level priming can actually bring down the high level of risk taking that is usually
associated with a high risk taking propensity (in gain-framed situations) and/or a chronic
promotion focus. These findings, however, all contradict – at least to some extent – my original
proposition of a positive correlation between construal level and risk taking. And therefore, how
and when having a low construal level could lead to higher-level risk taking are still questions.

Another interesting finding is that high power-primed people estimated more negatively
about the outcomes in a low-construal level mindset than in a high-construal level mindset, but
they felt more in control with a low-construal level mindset than with a high-construal level
mindset. On the other hand, low power-primed people estimated more negatively about the
outcomes in a high-construal level mindset than in a low-construal level mindset, but felt more in
control with a high-construal level mindset than with a low-construal level mindset. I think it
sends out the message that the feeling of control is not equivalent to being optimistic. And the
results do make some sense. For example, the finding of low power-primed people feeling more
in control in a high-construal level mindset than in a low-construal level mindset is somewhat
consistent with Stober & Borkovec’s (2002) finding that thinking abstractly can relieve anxiety for people in trouble. So if someone has already got a good sense of control – as people in the high-power condition, thinking concretely strengthens the sense of control; but if someone has already got a poor sense of control – as people in the low-power condition, thinking concretely can only sabotage the sense of control even more. In terms of why high-power and low-power people estimated the likelihood of negative outcomes as such, it is possible that when primed with a high-construal level mindset, people are more likely to think in a way that is consistent with their pre-existing personality traits or heuristics instead of to analyze every particular situation in detail. As a result, high-power people see things more positively and low-power people see things more negatively in this mindset. That being said, all the reasoning above is purely speculative.

**GENERAL DISCUSSION**

**Summary of Results**

The goal of the study was threefold: first, to test whether the mindset of being in power would lead to higher-level risk taking and whether the mindset of lacking power would lead to lower-level risk taking; second, to identify the major mediator(s) of the connection by both correlational analyses (based on the Multiple-Process Model that I proposed) and empirical verifications, assuming that the connection does exist; third, to investigate whether individual differences on chronic regulatory focus, power motivation, and risk taking propensity have any impact on the processes. To fulfill the goals, I conducted a series of five experiments. In Experiment 1 and 2, different power statuses were primed, followed by the measurement of all proposed mediators (i.e., state regulatory focus, construal level, and risk perception) and then the risk taking task. I used path modeling to identify the processes that might be involved in the
power – risk taking connection. Some measures in Experiment 2 were changed from that in Experiment 1, to make sure that the findings were not measure-dependent. In Experiment 3 and 4, I manipulated participants’ state regulatory focus after power priming with a 2 (promotion vs. prevention focus) × 3 (high power, low power, vs. baseline) design, and inspected how risk taking and other variables responded accordingly. It would be easier to examine regulatory focus as a potential mediator by directly manipulating it and observing the results. In Experiment 3 and 4, I used different ways to manipulate regulatory focus and to measure some of the variables, so if I could get consistent results from these two experiments, I would have more confidence in the results. Experiment 5 was designed to test construal level as a potential mediator of the power – risk taking connection. It shared the same structure and almost the same measures with Experiment 4, but it was construal level, instead of state regulatory focus, that was manipulated after power priming. In Experiment 2, 4, and 5, individual differences on chronic regulatory focus, power motivation, and risk taking propensity were also measured and their influences on every stage of the power – risk taking system were examined.

Before digging into the results, there is one potential criticism that I want to address – the effectiveness of power priming throughout the five experiments. After power priming, I asked participants how “in control” they felt “at this moment”. There were, unfortunately, not any differences between the high power-primed and the low power-primed group, despite the fact that significant differences were obtained in the pilot study. This was surely not a desirable result, but I do not think it provided sufficient evidence to nullify the power priming either. My reasons are: firstly, Dubois et al.’s (2010) and Galinsky, et al.’s (2003) methods which I used in this study are both standard methods for priming power and have been proven effective in many published peer-review articles. Galinsky, et al.’s method, in particular, has been the mainstream
method in this field. Secondly, no other researchers, so far as I know, have done the same type of manipulation check as I did in this study, and therefore the validity of the manipulation check itself is uncertain. Actually, researchers do not always agree on the necessity of conducting manipulation checks after priming.\textsuperscript{17} Thirdly – and I will get back to this later when discussing about individual differences – it is possible that some participants actively worked against the effect of lacking power. That is to say, people may be reluctant to admit their lack of power while still being influenced by it, especially when having power is important to them. This argument was somewhat supported in my analysis of people with high power motivation. As a result, I will discuss the results as if the power priming worked but still keep the possibility in mind that the priming might not be sufficient.

\textit{The power – risk taking connection}

Both Experiment 1 and 2 showed that having a higher power status did not necessarily lead to higher-level risk taking, nor did having a lower power status necessarily lead to lower-level risk taking.

Power status, however, may interact with state regulatory focus to impact risk taking and the perceived likelihood of negative outcomes, as suggested by Experiment 3.

Participants’ risk taking propensity seems to be the best predictor of risk taking across all experiments with some boundaries which I will explain later.

\textsuperscript{17} I didn’t see any information about manipulation check of power priming in the journal articles that I found, so I sent out a message through SPSP listserv asking about the methods to prime power status and the ways to conduct manipulation check. I got 14 responses from different researchers, and most responses look like this, “To be honest, I have never used a manipulation check… I also do suspect that the more subtle power priming tasks might not always show effects on overt, obvious measures of sense of power. You can always cite previous literature as evidence that the prime works, or run a separate pilot study if you are worried about manipulation checks being intrusive.”
The Multiple-Process Model

The Multiple-Process Model showed decent global fit with data from Experiment 1 and 2. However, very few paths were significant, and neither the modification indices nor the residue matrices suggested any clear solutions for improvement. The top part of the model was literally helpless, and this is not too surprising considering the fact that power did not show any effects on any of the variables in t tests or ANOVAs. Between the two proposed mechanisms: one via state regulatory focus (a motivation-focused route) and the other via construal level (a cognition-focused route), the former seems more relevant to risk taking. Modeling results suggest that risk taking is initiated by a promotion focus – a motivation to make good things happen, and this motivation in turn leads to boosted self-confidence and then to increased risk taking, as shown in Experiment 2. So to conclude, when individual difference factors are not taken into account, a promotion-focused motivation and a motivation-biased confidence best predict risk taking.

The route via construal level, which is my contribution to the model, was not supported by the data of Experiment 1 or 2. And confusingly, construal level related negatively to perceived intensity of gains in Experiment 1, which means, when people think abstractly, they do not see the gains as very desirable. This is exactly the opposite of what construal level theory predicts, and I am still not sure how to interpret this.

When individual differences were taken into account in the model, risk taking propensity immediately took over as the main predictor of risk taking. See Figure 8. A high risk taking propensity leads to a higher likelihood of adopting promotion-oriented strategies as well as boosted confidence, and the latter two increase risk taking.
The role of regulatory focus

In this study, there were two types of regulatory focus involved – one is chronic regulatory focus measured by Regulatory Focus Questionnaire (RFQ; Higgins et al., 2001), and the other is state regulatory focus either measured by regulatory strategy measure (Sassenberg et al., 2007) or manipulated by the wordings in an investment game (in Experiment 3) or the “hopes/aspirations” vs. “duties/obligations” task (in Experiment 4). Although the two types of regulatory focus had different operational definitions, they are conceptually the same. So I decided to integrate the results and present them together in this section.

First of all, chronic regulatory focus has a significant main effect on confidence and some emotional measures. People with a promotion focus tend to feel more confident, less tense, and less discouraged. Moreover, a chronic promotion focus usually associates with higher-level risk taking. And this finding is consistent with what I found about state regulatory focus in path modeling.

Second, there seems to be some competition or need for harmony between regulatory focus and power status when they coexist as independent variables. In Experiment 2, there was a main effect of chronic regulatory focus on regulatory strategy. In other words, chronic regulatory focus and state regulatory focus stayed in line with each other. However, this effect was much more evident in low power-primed condition than in high power-primed condition. It suggests, in my opinion, that being in a powerful mindset can change participants’ state regulatory foci from being consistent with their dispositional ones. In experiment 3, the data suggested that high power-primed people took more risks with a temporary promotion focus while low power-primed people took more risks with a temporary prevention focus. Although the interaction was not significant, the findings were similar on two different dependent measures (See Figure 10).
Moreover, there was a significant interaction between power priming and regulatory focus manipulation on the estimated likelihood of failure: low power-primed people estimated the likelihood of failure as lower with a temporary prevention focus while high power-primed people estimated the likelihood of failure as lower with a temporary promotion focus. This pattern in risk perception, in reasoning, aligns with the yet to be established pattern in risk taking behavior.

To conclude, firstly, having a promotion focus increases risk taking in general, but having high power could serve as a strong environmental factor that offsets the effect; secondly, the effect of power occurs, at least to some degree, through modifying people’s state regulatory focus. Moreover, it may be possible to make people take more/less risks by matching/mismatching their regulatory focus with imposed regulatory strategy cues. And at the same time, we have to be very cautious about the potential influence of situational framing – in Experiment 4, low power-primed people actually took the least amount of risks when a prevention focus was induced AND the situation was loss-framed: they preferred a certain loss to gambling which may incur a larger loss.

*The role of construal level*

As mentioned above, construal level failed to show any sign of being a mediator between power and risk taking in path modeling. Instead, it was involved in some surprising findings such as its being negatively related to the perceived intensity of gains (in Experiment 1, Figure 3) and being negatively related to the chronic regulatory focus (in Experiment 2, Figure 8).

In experiment 5, when construal level was manipulated, some interesting results emerged: first, in loss-framed situations, participants’ risk taking propensity no longer had any impact on risk taking behaviors; construal level showed a significant main effect instead. And it was people primed with a low construal level, rather than people with a high construal level, that
took more risks. Second, there came a significant interaction between construal level and chronic regulatory focus on risk taking. Further analyses showed that people with a chronic prevention focus did not respond to high-construal or low-construal priming differently, but people with a chronic promotion focus took significantly more risks when a low construal level was primed. And at the same time, promotion-focused people only took more risks than prevention-focused people when a low construal level was primed. In this sense, construal level works more like a moderator – influencing the magnitude of correlation between risk taking and other variables.

**Risk perception**

This study provides two sets of results regarding risk perception, and they can be used to answer the following two questions: are risk perceptions objective/accurate? And risk taking behaviors consistent with risk perceptions?

There is multiple evidence showing that risk perceptions are not objective. First, they vary as a result of individual differences. For example, people with high risk taking propensity perceive the situations more positively than people with low risk taking propensity do. Second, risk perceptions also vary according to temporary cues. For example, in Experiment 3, low power-primed people estimated the likelihood of failure as lower when a prevention focus was induced while high power-primed people estimated the likelihood of failure as lower when a promotion focus was induced. It looks like a kind of wishful thinking or motivation-biased cognition happening when the regulatory focus and regulatory strategy match. Third, the perceived likelihood of the negatives and the perceived likelihood of the positives – which

18 Different results were found with participants’ regulatory focus. In experiment 4, people with a chronic prevention focus saw things LESS negatively than people with a chronic promotion focus did; in Experiment 5 however, people with a chronic promotion focus saw things more positively (but not less negatively) than people with a chronic prevention focus did.
should be perfectly correlated in a negative fashion were barely related in some of the experiments. So to conclude, people’s risk perceptions are far from being objective or accurate.

Risk taking behaviors often had little to do with risk perceptions either. For example, in Experiment 4, the correlation between the bad luck measure and risk taking was almost zero. The lucky measure did correlate with risk taking at about .3, but it was still a very small correlation. In Experiment 5, low power-primed people estimated the likelihood of getting negative outcome as larger in a high-construal level mindset while high power-primed people estimated the likelihood of getting negative outcome as larger in a low-construal level mindset, but neither of the groups acted accordingly - low power-primed people did not take less risks with a high-construal level mindset, and high power-primed people did not take less risks with a low-construal level mindset. It is possible that the risk perception measures that I used were too explicit or superficial to capture any true or deep cognitive processes going on behind risk taking, but it is also possible that risk taking is not solely based on cognition in consciousness.

In addition, neither manipulated regulatory focus nor manipulated construal level had a main effect on risk perceptions, but they did interact with power to influence risk perceptions. That is to say, people may change how they perceive risks as a result of adopting a particular regulatory focus (promotion vs. prevention) or a particular way of thinking (abstract vs. concrete), but the effect would also depend on the state or situation which people find themselves in, such as their power status.

**Individual difference on power motivation**

Some previous research has suggested power motivation as a moderator of the effect of power priming (Goodwin et al., 2000; Keltner et al., 2003; Maner et al., 2007), and this study supports this argument. The results showed that people who had a high power motivation (i.e., a
motivation for dominance and higher status) had more positive emotions and less negative emotions than their low power-motivation counterparts. They also felt more in control, confident, and more likely to adopt promotion-oriented strategies. Interestingly, only high power-motivation people (not low power-motivation people) indicated being more discouraged, more tense, and less happy in low power-primed condition than in high power-primed condition, which suggests that power priming is more effective for high power-motivation people on a base level. However, motivation for power has been proven to buffer the negative effects of having no power. It either blocks those effects entirely or makes people work actively against them.

Experiment 4 showed a three-way interaction between power, power motivation, and framing on risk taking. In gain-framed situations, there was a significant interaction between power and power motivation: when primed with high power, high power-motivation people took more risks than low power-motivation people; when primed with low power, low power-motivation people took more risks than high power-motivation people. At the same time, low power-motivation people reacted more sensitively to different power priming statuses. This is an interesting finding because it suggests that people – especially people with a low power motivation – may be the most comfortable with taking risks when their actual power status matches their needs for power. In other words, even low power-motivation people who usually do not like taking risks will take more risks when being in a right position.

**Individual difference on risk taking propensity**

Risk taking propensity, as I mentioned before, revealed itself as the main predictor of risk taking in this study. It was also found that people with a high risk taking propensity felt calmer, more in control, confident, and more likely to adopt promotion-oriented strategies than people with a low risk taking propensity, and that only people with a low risk taking propensity felt
happier in high power-primed condition than in low power-primed condition. It seems that, just like power motivation, risk taking propensity buffers the negative effects of having no power.

Although risk taking propensity has a main effect on risk taking in general, there has been evidence suggesting that high-power priming, loss framing, and a high construal level have strong influences to override the effect of risk taking propensity. For example, in Experiment 5, when the situations were loss-framed, the effect of risk taking propensity disappeared. Instead, power priming showed a main effect: high power-primed people were more willing to choose gambling over a certain loss than low power-primed people did. And low construal-level people took more risks than high construal-level people on a marginal level.

**Implications for Theory and Practice**

Although the results of this study do not show any direct impact of power priming on risk taking, they suggest a couple of things that can help with understanding the connection between power and risk taking. First, it is a much more complicated and intricate system than what it appears to be. Individual differences, temporary motivational/cognitive statuses, and environmental cues such as the gain-loss framing are all involved in the system. As a result, when studying one element, researchers will need to better control or take into account other elements. To have such a complex system is not bad thing though: it gives us more leverage to promote a desirable behavior. And the results of this study have suggested some possible ways. Second, speaking to the Multiple-Process Model, the results suggest that state regulatory focus (in the motivation-focused route) is the most relevant variable in explaining risk taking. But as mentioned above, it also interacts with other variables in the system, and it evolves accordingly. See Figure 19. The risk perception component in the original Multiple-Process Model is not predictive of risk taking as proposed. So in order to predict how people are going to react to a
risk source, it is not sufficient to ask them “how risky do you think it is?” Risky only relates to how people evaluate the event, the situation, but not how they evaluate their own skills and potentials. Furthermore, the argument of risk perception predicting risk taking neglects the fact that people’s decisions also depend on their emotional and motivational status. That is probably why confidence had a better, but still small correlation with risk taking in Experiment 2. As for the construal level, having a high power status or a low power status does not necessarily lead to a high construal level or a low construal level in this study. This is contrary to Smith and Trope’s (2006) findings, and it makes me wondering whether the power priming was indeed successful. However, the findings of Experiment 5 suggest that construal level does relate to risk taking in some way: in loss-framed situations, thinking concretely makes people take more risks in general; thinking concretely makes promotion-focused people take more risks. The latter finding reminds me of the old motivation strategy: if you really want something, create a mental image of your having it, as specific as you can and as vivid as you can. It is likely that the magic happens when the promotion focus gets strengthened and the person becomes more likely to choose promotion-oriented strategies (e.g., trying something new, acting thoroughly) and to be more confident. It may be interesting to see whether thinking concretely would still make a person more likely to achieve his/her goal if the goal is prevention-oriented.

The effect of power motivation is another finding which amazes me. It is not surprising to see that people who want power are emotionally more sensitive to having power or not having power, it is however interesting to see that they did not feel less in control or less confident in the no power situation. And their risk taking behaviors did not differ too much across the two situations. The findings suggest to me that high power-motivation people are good at working
against the situation of not having power and they take power (or illusionary power) back into their hands.

Below are some other findings which I find particularly relevant to real life practices. In other words, if we want to induce a certain level of risk taking or predict the level of risk taking in a certain situation, these findings may be helpful.

I refer to these findings as “Two Matches with Conditions”. The first match is the one between pre-existing regulatory focus (or regulatory strategy) and temporary regulatory strategy cues (or regulatory focus cues). This study shows that people are more willing to take risks when there is the match. It is a finding with great potentials because it suggests that prevention-focused people who normally do not like risks would be willing to take risks if the desirable outcomes are presented from a prevention perspective. The results also suggest that prevention-focused people may take more risks in low-power situations which most of the time entail a predominance of prevention-oriented strategies. This finding contradicts the common view of leaders as daring and subordinates as meticulous and therefore needs further verification. However, leaders’ and subordinates’ chronic regulatory focus may be a ready explanation of the discrepancy. In terms of the “conditions” that affect the effectiveness of the “match”, the framing of the situation has certainly been one: when the situations were loss-framed, low-power people with a prevention focus actually took the LEAST amount of risks. This result makes intuitive sense: when someone really wants to prevent a bad outcome and this person has no control over the situation, then it is wiser to choose a certain loss over gambling which may bring a worse outcome. As someone who studies social dilemmas for a long time, I immediately think about this as an explanation of prevention-focused people’s lack of enthusiasm for pro-environmental projects as compared with their promotion-focused counterparts. As we know, cooperation in
social dilemmas is commonly considered as riskier than defection. If what people want is to prevent something bad from happening and they do not much control over the situation – which is usually true in large-scale social dilemmas, they would probably cooperate less when all the information tends to be loss-framed.

The second “match” is the one between power motivation and actual power status. This study shows that in gain-framed situations, people are more willing to take risks when their actual power status matches their needs for power, and it is especially true for people with a low power motivation: they took much more risks in low-power status. I am not sure whether it is a sign of low power-motivation people being more loosen up or not caring about the outcomes in low-power status, but the finding clearly suggests that low power-motivation people may not be able to function as a typical leader in high-power positions who feel in control, confident, and willing to apply promotion-oriented strategies. I think it will be a good topic for Human Resource Management studies.

**Strengths and Limitations**

Although it looks like a study which raises more questions than it answers, I think there are still some strengths of this study worth mentioning. First, it is the first time when construal level is proposed and tested as a potential mediator of the power – risk taking connection. Second, it is also the first attempt to juxtapose cognitive factors with motivational factors in a same path model. Although the Multiple-Process Model failed to be verified in some major routes and components, its reasoning and the modeling results can still add to the literature by encouraging future research. Third, in this study, both regulatory focus and construal level were manipulated and tested as mediators, and no previous research has done this empirically. The finding that people take more risks in regulatory focus-matching-regulatory strategy condition is
new in the area. Fourth, individual differences on regulatory focus, power motivation, and risk taking propensity were taken into account in this study, and these three variables turned out to interact with power and/or have complex influences on risk taking. Lastly, with limited time and number of participants, this study did a decent job in trying to replicate and cross-validate its findings. Most major variables such as risk taking were measured or manipulated with different methods. Environmental factors such as gain-loss framing were also considered and tested as boundary conditions. And framing was found to change risk taking patterns in many cases.

This study certainly has many limitations as well. First of all, because only mindset priming (with memories and vignettes) was used to induce the sense of power or no power in this study, the results may be peculiar to this priming method. If power had been primed conceptually (e.g., with a scrambled sentence task) or by body postures (Huang et al., 2011), the results might be different. And if this priming method was not entirely successful, it could have hurt the results. Secondly, by the same token, the results might have been influenced by the way in which risk taking was operationally defined and measured. As you may have noticed, Experiment 1 and 2 used different measures of risk taking, and this might have contributed to the fact that their results were not fully comparable. In the CCT, people can actually calculate the best decision for each round; while in the gamble game, there is no best decision. So it is possible that the nature of the risk taking task, the familiarity of the task, and the relevance of the task (i.e., the extent to which people care about its outcomes) can impact risk taking decisions as well. Thirdly, as a limitation of all correlational research, the causal relationships that I proposed with the Multiple-Process Model and its derivatives need to be verified with empirical studies. Although I did this with regulatory focus and construal level in Experiment 3, 4 and 5, the casual relationship between risk perception and risk taking remained untested in the study. Lastly, the data suggest
some meaningful patterns with emotional status, but the design of the study was not adequate to test them.

**Future Research**

The results of this study suggest quite a few directions for future research. I cannot list all of them, but here are what I feel most strongly about: first of all, some of the findings on risk taking look interesting and worth being verified with other priming methods and risk taking tasks, such as the “Two Matches with Conditions”. I think it would be particularly useful to find out whether the simple act of matching/mismatching primed regulatory strategy with regulatory focus cues in the risk taking task would lead to increased/decreased risk taking, and whether the effect would be strong enough to override the influences of chronic regulatory focus. After this, we could go one step further and test the interaction between regulatory focus and construal level as suggested by Experiment 5.

Second, for researchers interested in the theoretical aspects of risk taking, it may be important to investigate the relationship between risk perception (or different aspects of risk perception) and risk taking empirically. For example, we could try manipulating risk perception by exposing participants to different educational materials or controlled group discussions and see whether any behavioral changes come after. At the same time, we would need to take into account participants’ evaluations of their abilities as well as emotional and motivational factors.

Third, I think the finding that high power-motivation people work actively against the situations of having no power and even feel more in control could inform both personality research on similar variables and decision making studies in power and/or uncertainty related settings. It would also be interesting to investigate the psychological processes underneath the effect or to apply the finding to organizational practices.
Fourth, I feel a strong need for conducting research, especially field research on real life issues. Besides the social dilemma research which I mentioned in the Implications section, I also see medical/health decision making as a good topic. Patients can face very serious risk decisions when choosing between treatments, and as suggested by the results of this study, their dispositional regulatory focus, the way in which their goals are set (i.e., to promote something vs. to prevent something), and the way in which possible outcomes are conveyed to them (i.e., gains vs. losses) may all impact their treatment decisions. As a result, doctors, health consultants, and family members of the patient should all be aware of this in order not to impact the patient’s decision in a way which could harm the patient.
References


Venturing, 15(2), 113–134


Thompson, S.C. (1981). Will it hurt less if I can control it? A complex answer to a simple


*Psychological Review*, 117, 440-463.


*Daedalus*, 119(4), 41-60.

Table 1

*Means and standard deviations of main variables for groups differing in RTP, RFQ, and PowerMt*

<table>
<thead>
<tr>
<th>Measure</th>
<th>High RTP</th>
<th>SD</th>
<th>Low RTP</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>risk taking</td>
<td>7.53</td>
<td>3.71</td>
<td>6.14</td>
<td>3.60</td>
</tr>
<tr>
<td>regulatory strategy</td>
<td>6.92</td>
<td>1.68</td>
<td>4.44</td>
<td>1.27</td>
</tr>
<tr>
<td>confidence</td>
<td>5.71</td>
<td>1.28</td>
<td>4.99</td>
<td>1.22</td>
</tr>
<tr>
<td>PM-oriented risk taking</td>
<td>7.35</td>
<td>3.33</td>
<td>6.04</td>
<td>3.72</td>
</tr>
<tr>
<td>regulatory strategy</td>
<td>6.34</td>
<td>1.83</td>
<td>5.14</td>
<td>1.55</td>
</tr>
<tr>
<td>confidence</td>
<td>5.67</td>
<td>1.27</td>
<td>5.09</td>
<td>1.27</td>
</tr>
<tr>
<td>construal level</td>
<td>19.35</td>
<td>6.73</td>
<td>21.67</td>
<td>6.09</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure</th>
<th>High PowerMt</th>
<th>Low PowerMt</th>
</tr>
</thead>
<tbody>
<tr>
<td>risk Taking</td>
<td>6.53</td>
<td>6.55</td>
</tr>
<tr>
<td>regulatory strategy</td>
<td>6.04</td>
<td>5.39</td>
</tr>
<tr>
<td>confidence</td>
<td>5.65</td>
<td>5.05</td>
</tr>
</tbody>
</table>
### Table 2

*Items, Factors, and Loadings of the Risk Perception Measure in Experiment 3*

<table>
<thead>
<tr>
<th>Item #</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (pos-int)</td>
<td>-.075</td>
<td>-.041</td>
<td>.162</td>
<td>.890</td>
</tr>
<tr>
<td>2 (pos-int)</td>
<td>.049</td>
<td>.041</td>
<td>.055</td>
<td>.902</td>
</tr>
<tr>
<td>3 (neg-int)</td>
<td>.093</td>
<td>.206</td>
<td>.671</td>
<td>-.003</td>
</tr>
<tr>
<td>4 (pos-lik)</td>
<td>.853</td>
<td>-.220</td>
<td>.017</td>
<td>.014</td>
</tr>
<tr>
<td>5 (pos-int)</td>
<td>.246</td>
<td>-.063</td>
<td>.559</td>
<td>.301</td>
</tr>
<tr>
<td>6 (pos-lik)</td>
<td>.785</td>
<td>-.347</td>
<td>-.042</td>
<td>-.045</td>
</tr>
<tr>
<td>7 (neg-int)</td>
<td>-.081</td>
<td>.082</td>
<td>.833</td>
<td>.064</td>
</tr>
<tr>
<td>8 (pos-lik)</td>
<td>.886</td>
<td>-.215</td>
<td>.006</td>
<td>.019</td>
</tr>
<tr>
<td>9 (neg-lik)</td>
<td>-.225</td>
<td>.827</td>
<td>.052</td>
<td>.095</td>
</tr>
<tr>
<td>10 (neg-int)</td>
<td>-.194</td>
<td>.040</td>
<td>.824</td>
<td>.061</td>
</tr>
<tr>
<td>11 (neg-lik)</td>
<td>-.258</td>
<td>.823</td>
<td>.136</td>
<td>-.050</td>
</tr>
<tr>
<td>12 (neg-lik)</td>
<td>-.269</td>
<td>.873</td>
<td>.114</td>
<td>-.063</td>
</tr>
</tbody>
</table>

Note: “pos-int” stands for intensity of positive outcomes; “pos-lik” stands for likelihood of positive outcomes; “neg-int” stands for intensity of negative outcomes; “neg-lik” stands for likelihood of negative outcomes.
Figure 1: Four aspects of risk perception.
Figure 2: Multiple-Process Model of Power and Risk Taking.
Figure 3: Revised model in Experiment 1
Figure 4: Fit of the Multiple-Process Model in Experiment 2

- Power
- Sense of control
- Regulatory strategy
- Confidence
- Construal level (CIT)
- Risk taking (Gambling)

Relations:
- Power → Sense of control: 0.213, p = 0.001
- Sense of control → Regulatory strategy: 0.162, p = 0.008
- Sense of control → Confidence: 0.147, p = 0.022
- Confidence → Risk taking (Gambling): 0.147, p = 0.022
Figure 5: Fit of the first revised model in Experiment 2
Figure 6: Fit of the second revised model in Experiment 2
Figure 7. Fit of the Multiple-Process Model with individual difference variables in Experiment 2

Note: In the figure, I did not draw the paths from the three individual difference variables (RTP, PowerMt, RFQ) that were not significant for sake of clarity.
Figure 8. Revised model with individual difference variables in Experiment 2
Figure 9. Revised model centered on risk taking in Experiment 2
Figure 10. Interaction between power priming and regulatory focus manipulation on support and investment in Experiment 3

Figure 11. Interaction between power priming and regulatory focus manipulation on risk perception in Experiment 4
Figure 12. Interaction between power priming and regulatory focus manipulation on risk taking in loss framing in Experiment 4
Figure 13. Interaction between power priming and power motivation on risk taking in gain framing in Experiment 4
Figure 14. Interaction between chronic regulatory focus and regulatory focus manipulation on risk taking in Experiment 4
Figure 15. Interaction between power priming and construal level manipulation on feelings of in control in Experiment 5
Figure 16. Interaction between power priming and construal level manipulation on perceived likelihood of bad luck in Experiment 5
Figure 17. Interaction between risk taking propensity and construal level manipulation on risk taking in gain-framed situations in Experiment 5
Figure 18. Interaction between chronic regulatory focus and construal level manipulation on risk taking in Experiment 5
Risk perception

Risk taking

Regulatory focus

Individual difference
e.g., risk taking propensity

Regulatory focus (state) → Risk perception

Temporal emotional/motivational/
cognitive state &
Environmental cues (e.g. framing)

Risk taking

Chronic Regulatory Focus
- Chronic Prevention
- Chronic Promotion

Mean Risk Taking

Promotion Focus
Prevention Focus

Graph showing mean risk taking for chronic promotion and prevention focus.
Figure 19. The model of risk taking based on evolving regulatory focus
APPENDIX

Appendix A. Measures

Appendix A-1: A screen shot of Columbia Card Task (CCT)
Appendix A-2: Behavior Identification Form (BIF)

This form focuses on your personal preferences for how a number of different behaviors should be described. Below you will find several behaviors listed. After each behavior will be two different ways in which the behavior might be identified.

For example:

1. Attending class
   a. sitting in a chair
   b. looking at a teacher

Your task is to choose the identification, a or b, that best describes the behavior for you. Simply place a checkmark next to the option you prefer. Be sure to respond to every item. Please mark only one alternative for each pair. Remember, there’s no right or wrong answers, just mark the description that you personally believe is more appropriate for each pair.

1. Making a list
   a. Getting organized*
   b. Writing things down

2. Reading
   a. Following lines of print
   b. Gaining knowledge*

3. Joining the Army
a. Helping the Nation's defense*

b. Signing up

4. Washing clothes

a. Removing odors from clothes*

b. Putting clothes into the machine

5. Picking an apple

a. Getting something to eat*

b. Pulling an apple off a branch

6. Chopping down a tree

a. Wielding an axe

b. Getting firewood*

7. Measuring a room for carpeting

a. Getting ready to remodel*

b. Using a yard stick

8. Cleaning the house

a. Showing one's cleanliness*

b. Vacuuming the floor

9. Painting a room

a. Applying brush strokes
b. Making the room look fresh*

10. Paying the rent
   a. Maintaining a place to live*
   b. Writing a check

11. Caring for houseplants
   a. Watering plants
   b. Making the room look nice*

12. Locking a door
   a. Putting a key in the lock
   b. Securing the house*

13. Voting
   a. Influencing the election*
   b. Marking a ballot

14. Climbing a tree
   a. Getting a good view*
   b. Holding on to branches

15. Filling out a personality test
   a. Answering questions
   b. Revealing what you're like*
16. Toothbrushing
   a. Preventing tooth decay*
   b. Moving a brush around in one's mouth

17. Taking a test
   a. Answering questions
   b. Showing one's knowledge*

18. Greeting someone
   a. Saying hello
   b. Showing friendliness*

19. Resisting temptation
   a. Saying "no"
   b. Showing moral courage*

20. Eating
   a. Getting nutrition*
   b. Chewing and swallowing

21. Growing a garden
   a. Planting seeds
   b. Getting fresh vegetables*

22. Traveling by car
a. Following a map

b. Seeing countryside*

23. Having a cavity filled

a. Protecting your teeth*

b. Going to the dentist

24. Talking to a child

a. Teaching a child something*

b. Using simple words

25. Pushing a doorbell

a. Moving a finger

b. Seeing if someone's home*

Scoring: sum of number of *'s
Appendix A-3: Risk Perception of the CCT

Please continue to answer a couple of questions regarding the card game that you just played.

1. Please rate how beneficial you think it would be to your outcome if you get a gain card.
   
   | 0. Not At All | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Extremely Beneficial |

2. Please rate how good you felt (or you would feel) when you hit a gain card.
   
   | 0. Not At All | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Extremely Good |

3. If asked to play the game again, how likely do you think that you would get all gain cards in one round?
   
   | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Highly Likely |

4. Please rate how detrimental you think it would be to your outcome if you hit a loss card.
   
   | 0. Not At All | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Extremely Detrimental |
5. Please rate how bad you felt (or you would feel) when you hit a loss card.

[ ] 0. Not At All
[ ] 1.  
[ ] 2.  
[ ] 3.  
[ ] 4.  
[ ] 5.  
[ ] 6.  
[ ] 7.  
Extremely Bad

6. If asked to play the game again, how likely do you think that you would hit a loss card in one round?

[ ] 0.  
[ ] 1.  
[ ] 2.  
[ ] 3.  
[ ] 4.  
[ ] 5.  
[ ] 6.  
[ ] 7.  
Highly Unlikely

Highly Likely
Appendix A-4: Category Inclusiveness Task (CIT)

This set of questions is designed to measure some aspects of your cognitive style. Please rate each exemplar in terms of its prototypicality on a 10-point scale.

1 ---- not at all prototypical, definitely does NOT belong to the category

10 ---- very prototypical, definitely does belong to the category

There are no right or wrong answers. Please simply let us know how you truly think or feel right now. Don't over think about each item.

camel _ vehicle

bus _ vehicle

airplane _ vehicle

carrot _ vegetable

potato _ vegetable

garlic _ vegetable

skirt _ clothes

shoes _ clothes

handbag _ clothes

couch _ furniture

lamp _ furniture

telephone _ furniture
Appendix A-5: Individual Difference Measures – Chronic Regulatory Focus

This set of questions asks you HOW FREQUENTLY specific events actually occur or have occurred in your life. Please indicate your answer to each question by choosing an appropriate number from 1 to 5.

<table>
<thead>
<tr>
<th>Question</th>
<th>never</th>
<th>sometimes</th>
<th>very</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compared to most people, are you typically unable to get what you want out of life?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Growing up, would you ever “cross the line” by doing things that your parents would not tolerate?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>How often have you accomplished things that got you “psyched” to work even harder?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Did you get on your parents’ nerves often when you were growing up?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>How often did you obey rules and regulations that were established by your parents?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Growing up, did you ever act in ways that your parents thought were objectionable?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Do you often do well at different things that you try?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Not being careful enough has gotten me into</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
trouble at times.

When it comes to achieving things that are important to me, I find that I don’t perform as well as I ideally would like to do.

I feel like I have made progress toward being successful in my life.

I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.

Appendix A-5: Individual Difference Measures – Power Motivation

Please indicate the degree to which each statement below is descriptive of you.

① Disagree   ② Moderately Disagree   ③ Slightly Disagree   ④ Neutral
⑤ Slightly Agree   ⑥ Moderately Agree   ⑦ Agree

I think I would enjoy having authority over other people

If given the chance, I would make a good leader of people

I think I am usually a leader in my group

I enjoy planning things and deciding what other people should do
I like to give orders and get things going

People take notice of what I way

When a group I belong to plans an activity I would rather direct it myself than just help put and have someone else organize it

I would like an important job where people looked up to me

I like talking to people who are important

I want to be an important person in the community

I really admire people who have fought their way to the top

If I had enough money I would not work

Even if I won a great deal of money on the pools I would prefer continue to work

If unemployment benefit was really high I would still prefer to work

I like to be admired for my achievements

I dislike being the center of attention

I like to have people come to me for advice

I find satisfaction in having influence over others.

Appendix A-5: Individual Difference Measures – Risk Taking Propensity

Please indicate the degree to which each statement applies to you in your everyday life.

① Disagree  ② Moderately Disagree  ③ Slightly Disagree  ④ Neutral
I usually take more risks compared to other people in my everyday life.

I like a lot of variety.

Too much excitement tends to upset my stomach.

I prefer to be able to predict what will happen next.

I often position myself in an exciting/dangerous situation on purpose.

I often feel the urge to go out and do things.

I like sticking to my routines.

I love thrills and excitement.

In general, I try to avoid dangerous situations (for example when I'm driving).
Appendix A-6: Risk Taking and Risk Perception Measure in Experiment 3

● How will you support this plan before the board of directors? Please circle a number to indicate the extent to which you will suggest the board of directors to implement this plan.

1 2 3 4 5 6 7
strongly neutral strongly

● If you could partially implement this plan rather than investing the entire $8,000,000, how much would you invest? $____________

● Please rate, by circling an appropriate number, how desirable it would be if the plan succeeds after being implemented.

0 1 2 3 4 5 6 7
not at all extremely desirable

● Please rate how beneficial it would be to the company if the plan succeeds after being implemented.

0 1 2 3 4 5 6 7
not at all extremely beneficial

● Please rate how sad you would be if your company invests the plan fails after being implemented?

0 1 2 3 4 5 6 7
not at all extremely sad

● To what extent are you confident that the plan will succeed if being implemented?
● Please rate how happy you would feel if the plan succeeds after being implemented.

0  1  2  3  4  5  6  7
not at all  very much

● Please rate the likelihood of the plan being a success.

0  1  2  3  4  5  6  7
highly unlikely  highly likely

● Please rate how much it might hurt your company if the plan fails after being implemented.

0  1  2  3  4  5  6  7
not at all  extremely so

● To what extent do you vividly foresee the plan being a success?

0  1  2  3  4  5  6  7
not at all  very much

● Please rate the likelihood of the plan being a failure.

0  1  2  3  4  5  6  7
highly unlikely  highly likely

● Please rate how severe the consequence would be if the plan is implemented but fails.

0  1  2  3  4  5  6  7
not at all  extremely severe
• To what extent do you believe that the plan will fail if it is implemented?

0 1 2 3 4 5 6 7
not at all very much

• To what extent do you vividly foresee the plan being a failure?

0 1 2 3 4 5 6 7
not at all very much
In this task, you will face a series of decisions. In each decision, you need to choose between A—
a sure outcome, and B— a probability-based outcome (you could get something or nothing
depending on chances).

Please check the option that you favor. Even when the difference between the two options looks
really small to you, please try to pick one.

And please take this task seriously, as if you needed to make the choices for real.

I favor:

1. A. gaining $8
   B. a 40% chance of gaining $25 and a 60% chance of gaining $0

2. A. gaining $40
   B. a 40% chance of gaining $125 and a 60% chance of gaining $0

3. A. gaining $36
   B. a 50% chance of gaining $72 and a 50% chance of gaining $0

4. A. gaining $8
   B. a 50% chance of gaining $20 and a 50% chance of gaining $0

5. A. gaining $36
   B. a 40% chance of gaining $90 and a 60% chance of gaining $0
6. A. gaining $6
   B. a 50% chance of gaining $12 and a 50% chance of gaining $0

7. A. gaining $40
   B. a 50% chance of gaining $100 and a 50% chance of gaining $0

8. A. gaining $6
   B. a 40% chance of gaining $15 and a 60% chance of gaining $0

I favor:

1. A. losing $8
   B. a 40% chance of losing $25 and a 60% chance of losing $0.

2. A. losing $40
   B. a 40% chance of losing $125 and a 60% chance of losing $0

3. A. losing $36
   B. a 50% chance of losing $72 and a 50% chance of losing $0

4. A. losing $8
   B. a 50% chance of losing $20 and a 50% chance of losing $0

5. A. losing $36
   B. a 40% chance of losing $90 and a 60% chance of losing $0

6. A. losing $6
B. a 50% chance of losing $12 and a 50% chance of losing $0

7. A. losing $40

B. a 50% chance of losing $100 and a 50% chance of losing $0

8. A. losing $6

B. a 40% chance of losing $15 and a 60% chance of losing $0
Appendix B: Pilot Study Report

Methods

Participants

Participants were 61 undergraduates at University of Idaho (35 female, 26 males) who received course credit for participation. Most of them (80.3%) were between 18 and 20 years old.

Materials

Power priming. Dubois et al.’s (2010) power priming task was used to trigger either a high-power or a low-power mind set. It was exactly the same task as the one in Experiment 1.

Manipulation check. Participants were asked to indicate their feelings of in control, in power, confident, tense, calm, happy, and discouraged “at this moment” on a 9-point scale (1 – not at all; 9 – very much).

Procedure

The materials were printed out on papers. The teaching assistant handed the materials to every student in the class before the lecture began. Materials for the high-power and the low-power conditions were alternated, but students had no idea about the difference. After about 6-7 minutes, every student finished the task and returned the papers to the teaching assistant.

Results

People in the high-power condition scored significantly higher than people in the low-power condition on in control, \( t (60) = -4.752, p < .001 \), and in power, \( t (60) = -5.668, p < .001 \).
People in the high-power condition also tended to be more *confident, calmer, happier*, and *less discouraged*. The t values may become significant when the sample size gets larger.

Please see the table on the next page for more information.
Table:

<table>
<thead>
<tr>
<th>Measure</th>
<th>Low power</th>
<th></th>
<th></th>
<th>High power</th>
<th></th>
<th></th>
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<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>T (60)</td>
<td>p</td>
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<td>in control</td>
<td>4.90</td>
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<td>7.23</td>
<td>1.564</td>
<td>-4.752</td>
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<tr>
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<td>1.985</td>
<td>6.77</td>
<td>1.627</td>
<td>-5.668</td>
<td>.000</td>
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<td>6.81</td>
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<td>.871</td>
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<td>1.875</td>
<td>2.67</td>
<td>1.845</td>
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<td>.336</td>
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</tbody>
</table>
Appendix C: Construal Level Manipulation

Manipulation for the high-construal level condition:

Beginning at the bottom of the screen, with the statement "Maintain good physical health," fill in the first box with an answer to why you maintain good physical health. Once answered, the computer will move on to the next box, which will ask you to answer why you do what you have answered in the previous box. This will continue until all four boxes are answered, ending with last box and the statement "Why do I maintain good physical health?" at the top of the screen.

Why do I maintain good physical health?

Why?

Why?

Why?

Begin typing here.

Maintain good physical health
Manipulation for the low-construal level condition:

Beginning at the top of the screen, fill in the first box with an answer to how you maintain good physical health. Once answered, the computer will move on to the next box, which will ask you to answer how you do what you have answered in the previous box. This will continue until all four boxes are answered, ending with last box and the statement "How do I maintain good physical health?" at the bottom of the screen.