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Drew University College of Liberal Arts

The Influence of Power on People's Preferences and Attention.

A Thesis in Psychology

by

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Abstract

Studies have shown that people in positions of power are more likely to make riskier decisions (Anderson & Galinsky, 2006 & Carney et al. 2010). Participants primed with high power tend to pick the riskier choice compared to participants primed with low or no power. Also, people tend to choose the riskier choice when the decision is framed negatively rather than positively (Kou, Hsu & Day, 2009). This phenomenon is known as the framing effect. The approach/inhibition theory suggests that people with power make riskier decisions because they only attend to the positive stimuli and ignore the negative stimuli. This study uses an eyetracker to monitor participant's attention while they are making decisions. We hypothesize that power will influence participants' preferences for risk as well as, the amount of attention they pay to different information. Participants were assigned to a high, low or neutral power conditions. Scrambled sentences were embedded with critical words (i.e. authority, servant) and were used to prime power. Participants were presented with a series of decision making problems half framed positively and half framed negatively. They selected between a safe or risky choice. Results showed a robust framing effect but, the power condition did not show any significant influence. The eye-tracker showed no influence of power or frame on attention. The General Sense of Power Scales did not match power conditions but the difference was not significant. This study provides a stepping stone for the incorporation of technology in providing a deeper understanding of how different factors influence our decisions.

Keywords: power, framing effect, priming, eye-tracker, decision making

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The Influence of Power on People's Preferences and Attention.

Numerous studies have explored power's influence on people's preference for risk. Through the manipulation of power, using various priming techniques researchers have been able to alter participants' sense of power in a laboratory setting (Anderson & Galinsky, 2006; Galinsky, Magee, Inesi & Gruenfeld, 2006; Smith & Trope, 2006). Findings from these studies have shown that people primed with high power tend to choose the riskier option compared to those primed with low power (Gruenfeld et al., 2006; Smith & Galinsky, 2010; Smith & Trope, 2006). The approach/inhibition theory has gained prominence in explaining how power influences people's decisions. This theory suggests that people in power typically make riskier decisions because they only attend to the positive and reward stimuli and disregard the negative consequences (Anderson & Galinsky, 2006; Smith & Galinsky, 2010). However, power is only one of the many factors that influences people's preference for risk.

Many other studies have explored the influence of framing on people's preference for risk. Researchers have found that people tend to choose the riskier choice when the problem is worded negatively. On the other hand, when the problem is worded positively people tend to prefer the safe choice (Carney, Cuddy & Yapp, 2010; Fagely & Miller, 1990; Kou et al., 2009; Simon, Fagley & Halleran, 2004). The prospect theory is the most prominent theory proposed to explain this phenomenon. This theory suggests that people mentally create a reference point by which they judge the different outcomes to be good or bad.

The two aims of this study are to explore the influences of power and framing on people's attention and preference for risk and to explore if the approach/inhibition theory is a good model for explaining the influence of power on decision making. Using the eye-tracker the aim is test this theory by tracking participants' focus, attention, and cognitive effort.

Power

Power is typically defined as a person's perception of his or her ability to control valuable resources and influence the behaviors and actions of others. Power within the context of many studies is seen as a relational variable, meaning it has to be in relation to something or someone else (Anderson et al., 2003; Anderson & Galinsky, 2006; Whitson, Lijenquist, Galinsky, Magee, Gruenfeld & Cadena, 2013). In popular culture, power is typically associated with wealth or status. For example, people who hold powerful positions such as President, CEO, judges, and kings have enormous amounts of wealth.

In society, powerful people are often accused of being too self-centered, uncaring, and insensitive to others (Galinsky et al., 2006). Galinsky and colleagues' (2006) study sought to further explore the influence of power on peoples' perceptions. They did a series of experiments that explored the influence of power on participants' tendency to take the perspective of the other. They primed participants into high and low power groups by having them write about a personal experience where they had or did not have power over another individual. It was shown that participants primed with high power were less likely to take on the perspective of the other compared to the participants primed with low power.

In one of their experiments participants were asked to draw a capital letter ***E*** on their forehead. Participants primed with high power were more likely to draw the in ***E*** a self-oriented direction. This means that they drew the ***E*** as if they were the ones looking at it. The participants in the low power group were more likely to draw the ***E*** in the other-oriented direction. Meaning they drew the ***E*** in a way that it would be facing that right direction for a person who was sitting across from them to read it. A potential explanation for this could be that it is harder for people in power to walk in another person's shoes. It also allows people with power to be more goal-directed when faced with a risky decision or difficult situation. This means they can be focused on the rewards without worrying about or having to consider the negative impact on others (Galinsky et al., 2006).

Power and Risk

The tendency for people with power to only consider their perspective may explain their propensity for risk (Anderson et al., 2003; Anderson & Galinsky, 2006; Smith & Galinsky, 2010). Anderson and Galinsky's (2006) goal was to explore the relationship between power and risk by doing a series of five experiments. They employed different priming techniques such as sentence fragment completion to prime participants into the high, low, or neutral power groups. They found that participants who were primed with high power were more likely to report that they engaged in unprotected sex. Another interesting finding was that when the high power group was given a classic decision problem (e.g. Asian Disease Problem), they were more likely to choose the riskier choice in both the positive and negative frames compared to the neutral and low

power groups. There was also no significant difference in risk preference between low and neutral power groups.

Manipulating body postures and poses is another effective way of priming power (Carney et al., 2010). This study explored the influence of body positions on participants' physiology and perceptions of power. Researchers found that participants who stood in "high power poses" for a minute showed an increase in testosterone and a decrease in cortisol (a stress hormone). On the other hand, participants who stood in "low power poses" showed a decrease in testosterone and increase in cortisol. Furthermore, participants who stood in "high power poses" were more likely to take risks in a gambling game compared to the low power group.

A powerful pose was defined as a sitting or standing position where a person physically took up more space. For example, standing straight and putting one's hands on their hips with their chest out. In comparison, low power poses take up less space and are more condensed. For instance, imagine a person sitting in chair with their head down and their hands between their legs. This demonstrates that the influence of power affects both the mental and physical state of people. The affect of the power poses on people's sense of power is mediated by cultural norms (Parks, Streamer & Huang, 2013). Parks et al. (2013) compared the effect of power posing on American and Asian born participants. They found that power posing was only effective among American born participants, because it elicited an implicit sense of power. This implicit sense of power was not presence among Asian born participants.

Sentences scrambles are another common technique used to prime power (Smith & Trope, 2006; Smith, Jostmann, Galinsky & van Dijk, 2008). Sentence scrambles present participants with a collection of five words from which they must create a grammatically correct four word sentence. Embedded in the word choices are "priming words" that triggers unconscious associations with power without listing the word "power". Words such as authority, boss, and executive have been used by researchers as high prime words. Some examples of low prime words are: servant, yield, and obey (Anderson& Galinsky, 2006; Smith & Trope, 2006).

Overall power can be manipulated in a multitude of ways. These findings also suggest that power is not just in the head but also has physiological influences. However, the "sense of power" may differ depending on participants' cultural background. Furthermore, these studies have shown that power can be effectively manipulated through experimental means. This has allowed researchers to explore the effects of power in empirical studies. Interestingly, many studies have found that gender does not significantly effect the effectiveness of power manipulation (Anderson & Galinsky, 2006; Fast, Sivanathan, Mayer & Galinsky, 2012; Keltner, Anderson & Gruenfeld, 2003).

The approach/inhibition theory

The approach/inhibition theory is a model that seeks to explain the influence of power on risky decisions (Anderson et al., 2003; Anderson & Galinsky, 2006). A behavior system is a set of particular behaviors that an animal or person will engage in when the system has been activated. This theory focuses on the role of the behavioral approach and the behavioral inhibition system. The idea is that an increase of power

activates the behavioral approach system which up regulates behaviors associated with obtaining rewards (e.g. food and sex). This leads the person to increase scanning in the environment for positive and reward laden stimuli. A decrease in power activates the behavioral inhibition system which is similar to an alarm system. This tends to make a person increasingly more vigilant and attentive to threats in the environment. Therefore, more weight and consideration is put on the negative stimuli. This theory may explain why people tend to spend more time on the negatively framed problems because they elicit negative emotions (Anderson & Galinsky, 2006 & Kou et al., 2009).

As shown earlier, people in/with power tend to have an affinity for risk. The approach/inhibition theory suggests that people with high power are more likely to attend to positive stimuli (i.e. rewards) and so they "see" no threat, only benefits. Conversely, people with low power tend to pay more attention to information that is threatening; therefore they are less likely select the riskier option. This suggests that attention plays an important role in people's decisions. Using an eye-tracker this attention can be objectively measure. Furthermore, the eye-tracker enables us to track the amount of time people spend reading and what they are focusing on. Indeed, Qrquin and Loose (2013) argue that one's eyes are the gatekeepers to the brain and its processing powers. In the current study, the eye-tracker is used in hopes of providing new insight into the influence of power and framing on attention.

Decision Making

Decision making refers to the complex process where people choose one option or path over another. This process plays an integral role in people's everyday lives. Some of

the processes involved in decision making are attention, information processing, memory, and heuristics (Kou et al., 2009; Qrquin & Loose, 2013). Attention refers to purposeful or unintentional concentration on a single object or thought in a person's environment. Information processing refers to the theorized mechanisms that are involved in gathering and interpreting the stimuli in the environment. This shapes people's understanding of the world around them. Memory refers to a person's mental ability to encode, store and retrieve information (Gerrig & Zimbardo, 2002).

There are a multitude of different factors that influence people's decision making. Some of these factors are external and some are internal. External factor refers to something that happens outside the person. For example, one of the two paths a person wishes to follow is blocked by a fallen tree. On the other hand, internal factors such as emotional states, sense of power, and prejudices. Ongoing studies seeking to explore and categorize factors that influence decision making are extremely numerous (Cassotti, Habib, Poirel, Aïte, Houdé & Moutier, 2012; Cheung & Mikels, 2011; de Vreese, Boomgaarden & Holli, 2011; Fagley & Miller, 1997; Mishra & Fiddick, 2012; Smith & Galinsky, 2010).

Decisions and Risk

A popular area of study continues to be exploring the process of decision making under uncertain circumstances (Anderson et al., 2003; Anderson & Galinsky, 2006; Fagley & Miller, 1990; Simon et al., 2004; Wang, 1996). Throughout a person's lifespan there are many incidents where people make decisions under these circumstances. The choices people make may end up resulting in negative or positive outcomes. For instance,

deciding that a family member should undergo cancer treatment in not a decision made with certainty. Cancer treatment is expensive and a significant investment for the family and the individual both emotionally and financially. The hope is that the treatment is effective and the cancer is either eliminated or goes into remission. On the other hand, there is the chance that the treatment will be ineffective and the cancer may get worse.

In the 1950's the Cognitive Revolution led to new insights into the processes that are involved in decision making. One such insight was the identification of cognitive fallacies that lead people to make bad decisions. The sunk-cost fallacy is a phenomenon in which people continue to exert effort or infuse more money into a problem that will not pay off simply because they have already exerted effort or spent money and do not want to 'waste' this previous cost. The hope is that if they continue to engage than the investment will pay off (Gilbert, Fiske &Lindzey, 1998). Another influence is the framing effect which is that people tend to choose the riskier choice when the information is worded negatively (de Vreese et al.2011; Simon et al., 2004; Smith & Trope, 2006).

Framing Effect

The framing effect was first identified by Tversky and Kaheman (1981). Participants were presented with a few decision problems where they had to choose between two options. These problems were framed either negatively or positively. An example is the "Asian Disease Problem" which is a classic and has been modified in many studies.

> Tversky and Kaheman (1981) write: Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimate of the consequences of the programs are as follows: (p.453)

The passage above introduces the problem to the participants. This description of issue remained the same for both the negative and positive frames. Regardless of frame there were two types of choices a safe and a risky choice. In the positively worded frame program A is the safe choice meaning the outcome is certain. In contrast, program C is the risky choice meaning the outcome is uncertain. Program B in the negative frame is the certain and safe choice while, program D is the uncertain risky choice.

> As written by Tversky and Kaheman (1981): If program A is adopted, 200 people will be saved. If program B is adopted, there is 1/3 probability that 600 people will be saved and 2/3 probability that no people will be saved. Which of the two programs would you favor?(p.453)
>
> Tversky and Kaheman (1981) wrote: if program C is adopted 400 people will die. If program D is adopted there is 1/3 probability that nobody will die, and 2/3 probability that nobody will die, and 2/3 probability that 600 people will die. Which of the two programs would you favor?(p.453)

Mathematically, both program A and C will save 200 people however; they are framed either in terms of lives saved or deaths. Similarly, program B and D have the same probabilities but they are framed differently. Tversky and Kaheman (1981) reported that participants were significantly more likely to choose the riskier choice when the information was framed in a negative manner. Participants were also more likely to choose the safer choice when it was framed in a positive manner. As mention before, the "frame" refers to the wording of the two choices that are presented to the participants.

The framing phenomenon supports that idea that frame has a significant influence on how people interpret and conceptualize information (De Vesse et al., 2011; Goldsmith & Dahr, 2013; Wang, 1996). However, the influence of framing is not limited to the domain of decision making.

Other ways people have studied it have been exploring how frame shapes attitudes and motivations (De Vesse et al., 2011; Goldsmith & Dhar, 2013). In the study done by Goldsmith and Dhar (2013) they explored the relationship between the framing of incentives and individual task motivations. They hypothesized that the incentives that were framed negatively (e.g. losing money for each wrong answer) would increase the amount of time participants spend on the task. They also hypothesized that when incentives for the tasks that were framed positively (e.g. gain money for each right answer) participants would spend less time on them. Researchers conducted a series of experiments where participants were presented with anagrams which they had to solve. In both groups (negative and positive frames), participants were made aware that there was a maximum amount money that could be earned. The study found that participants whose

incentives were framed in a negative manner tended to spend more time on the anagrams compared to participants whose incentives were framed in a positive manner. This suggests that people attend more and give more effort to information that is framed negatively.

In, 2011, a study by De Vesse et al. sought to explore the influence of framing on the issue of Turkey joining the European Union(EU). Researchers found that in comparison to the control group participants who read the positive news coverage tended to be more supportive. Compared to the control group participants who read the negative news coverage tended to be more opposed. Moreover, the negative frame had a stronger impact than the positive frame. Furthermore, people who were more politically aware tended to be more influenced by the frame. These findings suggest that manipulating the framing of an issue can influence the public's perception of it.

There are individual differences and factors that mitigate the framing effect on participants. A study explored whether priming participants with pleasant stimuli before presented them with decision problems lessened the framing effect (Cassotti, Houdé, Habib, Poirel, Aïte & Moutier, 2012). They found that using pleasant stimuli to prime participants mitigated the effect of framing. Researchers speculated that this presentation reduces the aversion to loss. This supports that idea that there are many other factors that influence the effect framing as well as decision making.

Overall, framing affects many domains of life such as motivation, understanding of world issues, and decision making. The presence of the framing effect suggests that factors such as word choice, phrasing, context, and content influence people's

perceptions of risk. The effects of framing tend to be stronger in the negative frames than in the positive frames. This strength varies depending on factors such as individual personality, life experience, and sense of power (Anderson et al., 2003; Anderson & Galinsky, 2006; Fagley & Miller, 1990).

Prospect theory

The prospect theory is one of the prominent theories currently used to conceptualize and understand how and why people make risky decisions (Anderson & Galinsky, 2006; Highhouse & Paese, 1996; Wang, 1996). Kaheman and Tversky (1981) introduced this theory as a way to explain the framing phenomenon. Prospect theory suggests that people create a subjective reference point based on the information they gather. People then use this reference point to assign values to the prospective outcomes (i.e. alternatives). Prospects whose values are perceived to fall above the reference point are seen as gains while, prospect perceived to fall below are seen as losses (Anderson & Galinsky, 2006; Highhouse & Paese, 1996; Wang1996).

This process of analyzing prospects involves two stages: editing and evaluation. Editing refers to the creation of the reference point based on the information available. Evaluation is comparing the two outcomes to this reference point and calculating the utility. People will tend to pick the option with the most utility (i.e. the best outcome). In respect to the Asian Disease problem, this theory suggests that in the positive frame the reference point is that 600 lives will be lost. Therefore, the certainty of saving 200 people is more attractive than the one third probability of saving everyone and two thirds chance of saving no one. In the negative frame, however, the reference point is zero people dying

so; both outcomes are perceived as negative. The certainty of 400 people dying is less attractive than the prospect of two thirds chance that 600 people will die (Kou et al., 2009). This theory is challenging to empirically evaluate because the reference point in subjective so and data is difficult to collect.

Eye-Tracking and Cognitive Effort

The increasing incorporation of technology in psychological studies allows researchers to measure previous immeasurable variables. The eye–tracker has allowed researchers to record things such as: where people are looking, for how long, and what they are looking at. Many studies have utilized the eye-tracker to measure people's attention (Kou et al., 2009; Risko & Kingstone, 2011). A common way to measure attention is see how long people spend on a task. Goldsmith and Dhar (2013) found that negatively framed incentives were more motivating. Would this translate into a difference in the amount of time people spent processing information (i.e. cognitive effort) for the negative and positive frames? Cognitive effort refers to the amount of time it take a person to process the information. This is basic measure of attention whereas; a more in-depth measure is looking explicitly at where a person looks and for how long. In this study cognitive effort is defined as 1) total fixations/total word displays and 2) total time/total word displays. The influence of framing on cognitive efforts was explored by Kou et al. (2009) study. They conducted an exploratory study which utilized an eye-tracker in the assessment of modified decision making problems of Tversky and Kaheman (1981) referenced above. Researchers hypothesized that negatively framed problems require more cognitive effort because they elicit a more emotional response.

Participants were presented a series of decision making problems both positive and negatively framed. Participants showed a tendency to spend more cognitive effort on the negatively framed problems relative to the positively framed ones.

Current Study

The aim of this study is to incorporate the eye–tracking technology to explore the relationship between power, framing, and decision making. Specifically, this study intended to make a foray into testing the approach/inhibition theory predictions that people in power tend to engage in more behaviors and attend to reward laded stimuli. In comparison to those who are not in power.

Cognitive effort will be used as basic measure of attention, in reference to Kou et al. (2009) finding that people tend to take longer on negative frames rather than positive frames. Based on the approach/inhibition theory power may also influence the amount of time people will spend on a particular frame. People in high power should engage in more general search behavior looking for reward laden stimuli, so they might take less time in both conditions.

Hypothesis 1: Participants in the high power group will be more likely to pick the riskier choice relative to participants in the low-power group.

Hypothesis 2: The framing effect will be present in both groups regardless of power level.

Hypothesis 3: Participants in the high power group will spend more cognitive effort on positively framed problems, whereas, participants in the low power group will spend more cognitive effort on the negatively framed problems.

Methods

Participants

Forty-eight Drew University undergraduate students participated as part of a course requirement. Age ranged from 18-24(average=18.8) and 33 participants were female.

Materials

A Tobii60 eye-tracker and corresponding software was used to present stimuli and collect behavioral and eye movement data. The scrambled sentences used to manipulate power (high, low, and neutral) were modified from Bargh and Chanrtrand (2000). There were 16 sets of scrambles (8 critical, 8 filter) per condition. The scrambles were a presentation of five words and only four of the five words could be used to create a grammatically correct sentence. The eight critical scrambled sentences contained one power prime word each (high, low, or neutral) see Appendix A.

The eight decision problems that have been used in past research to explore the effects of framing were taken from a variety of sources (see appendix B). Each problem briefly describes a dilemma, outlines two possible response and their outcomes, and asks the reader to select one of the two responses. One response results in guaranteed singular outcome whereas; the other response results in the probability of one of two outcomes occurring. In the Asian Disease example Response A is guaranteed to save 200 of the 600

lives. In comparison, response B there is a 1/3 chance of saving 600/600 lives or a 2/3 chance of saving no lives.

Each problem consisted of two versions that varied on the framing of the two outcomes (i.e. positive or negative). “Positive” outcomes were phrased in terms of gains (i.e. lives saved, money saved/won, etc.). “Negative” outcomes were phrased in terms of losses (i.e. lives, paintings, etc.). Note the actual value of the positive or negative framed outcomes were exactly the same. For example, in the Asian Disease problem, the positively framed treatment outcome saves 200 of 600 people. In comparison, in the negatively framed outcome the treatment will kill 400 of the 600 people. In addition, there were four problems whose two outcomes both included risk. There are both a positive and negatively framed version of these problems. Testing was done individually with the experimenter present at all times. Subjective measure of power was indexed with the Generalized Sense of Power Scale (GSPS) used by Anderson and Galinsky (2006), see Appendix C. This was given post-test to assess the efficacy of the power manipulation.

Design

A mixed 3(Power: high, low, and neutral) x 2(Frame: positive and negative) design was used. Participants were assigned to power condition based on the order in which they showed up for testing.

For each participant, half of the decision making problems were framed positively and half were framed negatively (counterbalanced across participants). Furthermore, the order of the position of the eight critical decision problems was rotated systematically for each participant such that each problem was equally and often presented in each serial

position on the list. Sixteen participants were tested for each condition for a complete counterbalance (see Appendix D).

Procedure

Participants were asked to read and sign the informed consent and sit in front of the eye-tracker. If the participant had glasses, then they were asked to remove them. They were verbally asked to sit up straight with their backs against the chair. They were verbally instructed to focus their gaze at the center of the screen. If needed they were asked to roll forward and back so that their eyes were about 60cm from the screen. After they were in the proper position, they were instructed verbally by the researcher to follow the red dot with their eyes. Afterwards, they were asked to move their eyes around and tell say if the white circle followed their eyes. Following calibration, power was manipulated by solving the scrambled sentences. Participants verbally reported the four word sentence they constructed from the five words presented.

Next participants were presented with the 12 decision problems. Participants were instructed verbally, “For the next task you will be given a series of different scenarios where you will be asked to make a choice between two options. If you look at the keyboard you will see 1 and 2. Please gently rest you fingers over these keys. Press 1 for the first choice. Press 2 for the second choice. There is no correct answers go at your own pace. Please keep your fingers rested on the keyboard for the task. Look at the center of the screen. Alright begin”. Finally, they were asked to fill out the Generalized Sense of Power Scale (GSPS) by hand. After, they were thanked and given the debriefing forms.

Results

The purpose of this study was to explore the influence of power and frame on participants' propensity for risk. The average Generalized Sense of Power Scale (GSPS) for each power conditions did not match their respective power condition of the participants. The averages for each condition were: high (average=33.5, SD = 6.3), low (average =34.1, SD = 5.2), and neutral (average=33.5, SD =6.2). These did not align with the priming condition. A one way ANOVA found that there was no significant difference between GSPS scores between groups, $F(2, 45) = .583$, $p=.563$.

Behavioral and Framing Findings

Participants were presented with eight-decision problems, where they selected between a safe or a risky choice. Half of these problems were worded in a negative manner and the other half were worded in a positive manner. Participants on average were more likely to choose the riskier choice in the negative frames (42.7%) compared to the positive frames (34.4%). This suggests an overall framing effect which is when people tend to choose riskier option in the negative frame rather than the positive frame.

In many previous studies researchers have found that not all decision problems elicit the framing phenomenon (Kou et al., 2009; Wang 1996). Therefore, we preformed a further item-analysis to see the presence of the framing effect relative to each specific problem. This was done by summing up the number of risky and safe choices based on whether the frame was negative or positive.

The framing effect was observed in five (Q1, Q2, Q3, Q6, and Q8) of the eight decision problems. Figure 1 show participants' choice between the risky or safe options

broken down by the frame of the problem. The significance of these differences was assessed using a Chi-square analysis. Framing was only found to be significant for Q3 (Cancer Problems), χ^2 (1) =8.57, p=.003. As well as Q8 (Art Problem), χ^2 (1) =8.39, p=<.05.

Behavioral and Power Findings

We used sentence scrambles to prime participants' power levels in order to explore effects of power on their preference for the risky or safe choice. Power primes were specific words presented to participants in a five word spread, from which they were asked to construct and verbally report a four word sentence. Overall, participants in the high, low, and neutral group choose the risky choice (41.4%, 34.4%, and 39.1%) of the time respectively. However, the framing effect was present in only five of the eight decision problems. Only these five problems were included in the analysis. Figure 2 shows participants' preference for the risky and safe choices by power condition, for those five questions. Across the five questions participants in high, low, and neutral group choose the risky choice (46.2%, 40%, and 45%) of time respectively.

Statistical Analysis of Behavioral Data

The probability for each participant choosing the risky option was calculated. These probabilities were averaged over the five questions that showed the framing effect. These averages were used for the following statistical analyses. All of the data from the neutral group was excluded from these analyses. The reason is that our focus was on exploring the differences between high and low power conditions.

A mixed repeated-measures ANOVA was conducted to explore the influence of framing and power on participants' preference for the risky choice. Table 1 shows the probability of participants choosing the risky option categorized by power condition and frame. The difference between groups was significant. There was a significant main effect of framing (positive vs. negative) on the probability of participants selecting the risky choice $F(1,30) = 15.33$, $p<.05$. There was no significant main effect of power on the probability of participants choosing the risky choice $F(1,30) =.978$, $p=.331$. Furthermore, there was no significant interaction between frame (positive or negative) and power condition (high versus low) $F(1, 30) = .456$, $p=.505$. These findings support the robustness of the framing effect. They also suggest that power may not make a significant difference or it is overshadowed by the framing effect. It also could suggest that power was ineffective.

Cognitive Effort and Framing and Power

The behavioral analysis was based on data that recorded whether participants choose the risky or the safe option. Another goal of this study was to investigate if power influenced the manner in which people paid attention. The variable cognitive effort was explored in the study done by Kou et al. (2009). Cognitive effort represents the amount of time it takes to process information. They suggested that this represents the attention and focus of assessing the information provided in the decision problems. The two measures of cognitive effort were: processing time per word and fixations per word. The time per word (time/word) was calculated by 1) subtracting the time stamp of onset of the slide from the time stamp of the key press. 2) This total was divided by the number words of

the particular problem on that slide. This was calculated for the both the negative and positive frames, since there was a slight difference in the number of words. The fixations per word (fixations/word) were calculated by dividing the total number of words by the total number of fixations. The fixation count was determined Tobii60 software, where it was labeled in the event type. This program works by presenting the fixations in a bundle where the fixation remains constant but the gaze changes. All fixations were only counted once. They were only counted if the validity for the left and right eye read (0,0). This means that the eye tracker was able to track both the eyes reliably. Participant three was excluded from this analysis because they required the use of glasses, and the eye tracker does not work effectively when someone is wearing glasses. Also, there were few participants that during some trials were excluded because the software program was unable to track their eyes.

Also for this analysis the neutral group was excluded because our focus was on looking at the difference between high and low power conditions. The individual time per word and fixation per word was calculated for each participant and were averaged across frame and power conditions. These averages were used for the statistical analysis, see Table 1.

Time per word

The first analysis looked at the influence of power and frame on time per word. Table 2 shows the average time per word between the negative and the positive frames as categorized by the power condition. A mixed repeated-measure ANOVA was used to explore the influence of power and framing on time per word. There was no significant

effects or significant interactions found between power and frame on time per word (no F (1, 29) > 1.129 and no p <.297). This suggests that framing may not have a significant effect on the amount of the time people spent on a particular question.

Fixations per word

Another mixed repeated measures ANOVA was used to explore the fixations per word and the influence of the frame and power conditions. Table 3 shows the average fixation per word that was used in this analysis. The findings were that there was no significant effect of neither frame nor power nor was there an interaction between these two variables (no F (1, 29) was smaller than .122 and no p<.587). This suggests neither frame nor power influenced the number of fixations. Considering there are no significant differences in these measures it seemed unnecessary to do a more in depth analysis of individual participants.

Further Analysis

The two problem questions that showed significant framing effects were: Q3 (Cancer Problem) and Q8 (Art Problem). An independent samples t-test was preformed to see if framing had a significant influence on time per word or fixation per word. Question 3: there was no significant difference found between negative (M = .43, SD = .57) and positive (M = .28, SD = .104) frames on time per word, t(44) = 1.232, p=.224. Furthermore there was no significant influence of either negative (M =1.24, SD = .46) or positive frame (M = 1.0452, SD = .4059) on fixations per word, t(44) =1.542, p=.130. For Q8 an independent samples t-test showed that there was no significant difference between negative frame (M=.25, SD = .11) or positive frame (M = .2841, SD = .09) for

time per word. As well as no significant difference between negative (M = .92, SD =.41) or positive (M= 1.04, SD =.318) for fixations per word, $t(44) = -1.129$, $p = .265$.

Two Chi-squares were conducted to see if there was significant influence of power condition on participant's preference for the risky or the safe choice. Participants in the high power condition for Q3 choose the risky choice (43.75%) and the safe choice (56.25%) of the time. In contrast, participants in the low power condition who choose the risky choice (31.25%) and safe choice (68.75%) of the time respectively. There was no significant difference, χ^2 (1) =.533, p=.465. For Q8 participants in high power condition choose the risky choice (62.5%) and the safe choice (37.5%) of the time. Participants in the low power condition who were evenly split between risky and safe choices. This difference was not significant, χ^2 (1) = .508, p=.476. These findings support the trend that participants were not influenced by power.

Discussion

There were two main purposes for this study. First, was to explore the relationship between power and people's preferences for risk. Second, was to assess the applicability of the approach/inhibition model to explain the influence of power on people's preferences for risk. An initial expectation that was the framing effect would be present in this study. This is because the framing effect is robust, and has been present is many studies throughout the years (Anderson et al., 2003; Anderson & Galinsky, 2006; Fagley & Miller, 1997; Kou et al., 2009; Smith & Trope, 2006; Wang 1996).

Previous studies have found that power influences people behaviors and cognitions (Anderson et al., 2003; Anderson & Galinsky, 2006; Galinsky et al., 2006 &

Whitson et al., 2013). People in/with high power are more likely to underestimate risk, choose riskier options, and engaging in riskier behaviors, etcetera (Anderson et al., 2003; Anderson & Galinsky, 2006; Smith & Galinsky, 2010).

In study done by Anderson and Galinsky (2006) they found that there was no difference between the control and low power group in their counts of safe vs. risky choice in the different frames. However, in this study the neutral group and the low power group did differ a lot. Anderson and Galinsky (2006) findings were that participants in the high power group were significantly more likely to choose the risky option overall, in comparison to the low power and control group.

The current study only compared that high and low power group, because there was no interest in the control group. Visually and numerically it appeared that participants in the high power group were more likely to choose the risky preference overall, compared to participants in the low power group. This difference was found not to be statistically significant. This is contrary to the findings by Anderson and Galinsky (2006). There are some factors that may explain why there was not a significant influence of power. However, sentences scrambles have been used in many studies to effectively prime power and other affects (Anderson et al., 2003; Bargh & Chartrand, 2000; Smith & Trope, 2006; Smith et al., 2008; Smith & Galinsky, 2010; Todorv & Bargh, 2002; Oyserman,2006; Zhang, Winterich & Mittal, 2010). There are many factors that may explain why there was no significant influence of power. First, the power primes may be ineffective. This explains why the General Sense of Power Scale (GSPS) did not match up with the power conditions. Second, the affect of the power priming may have been

mitigated by having to say the sentences out loud. There were a few instances, where people misread the directions or could not figure out a sentence. Third, the study by Galinsky et al. (2006) found that position of a person influences their sense of power. Participants were asked to sit with their back against the chair in an upright position. This may have counter any low power priming because sitting up straight may have induce high power.

The finding that behaviorally, framing was significant regardless of power conditions supports the hypothesis that the framing effect is robust. It also adds to the many studies which have reported the framing phenomenon (Anderson & Galinsky, 2006; Fagley & Miler, 1997; Kou et al., 2009; Smith & Trope, 2006; Wang, 1996). The framing effect was found among participants in the high and low power conditions but not those in the neutral power condition. The presence of this effect in the high and low conditions is consistent with findings by Anderson and Galinsky (2006). The finding that there was no overall framing effect amongst the neutral power group was not consistent with this study. One reason is that this group may have pressed the buttons randomly.

The framing effect was not present in all of the decision problems presented to the participants. This is consistent with the findings in Kou eat al. (2009) study that found only half of their decision problems produced the framing effect.

In the study done by Kou et al. (2009) researchers found that there was a significant difference between cognitive efforts for the positively framed problems compared to the negatively framed problems. Furthermore, cognitive effort spent on negatively framed problems was significantly higher. These researchers speculated that

this was because negative frames elicited a more emotional response therefore, it took more effort.

In the current study cognitive effort was defined as that amount of attention participants paid to each problem. It was assessed based on time per word and fixations per word as outlined in Kou et al. (2009) study. The results were that there was neither a significant effect of framing nor power on this measure. This is contrary to the findings by Kou et al. (2009) a reason for inconsistency is that fixations may be defined differently. This finding does not provide support for the hypothesis that people in high power tend to spend more cognitive effort on positive frames rather than negative frames and vice versa.

The second main purpose of this study was to explore if the approach/inhibition theory is a good model for assessing the influence of power on people's preference for risk. This theory predicts that people with high power tend to choose the riskier option because they tend to attenuate on the positive stimuli. In comparison, people with low power tend to be more risk adverse because, they tend to attenuate to stimuli that are negative and more threatening.

Cognitive effort was used as a basic measure that represented attention. The hypothesis was that participants in high power would exert more cognitive effort in the positive frame because they were focusing on the reward stimuli. In comparison, participants with low power would spend more effort in the negative frame because the information was more threatening. The results from the eye-tracker showed that there was no significant influence of power on cognitive effort. This may be because the

measure of cognitive effort was not sensitive enough to minute changes or the power prime was not effective.

The inconclusive data means that no conclusions about the effectives of approach/inhibition model can be drawn from this study. This was also the first time the eye-tracker was utilized in this manner to explore the relationship between power and the framing effect.

Limitations

It was unclear whether or not the sentence scrambles were effective in priming power, because the nature of this study there could not be an objective pre/post test comparison. The self-reports suggests that it was ineffective although this techniques has be used successfully in many previous priming studies(Anderson et al., 2003; Bargh & Chartrand, 2000; Smith & Trope, 2006; Smith et al., 2008; Smith & Galinsky, 2010; Todorv & Bargh, 2002; Oyserman,2006; Zhang, Winterich & Mittal, 2010). Another potential reason is that the use of eye-tracker required participants to sit in a particular way, which may have interfered with effects of priming (Galinsky et al., 2006). The eye-tracker was not always able to accurately code fixations and some trials were tossed because the eye-tracker was not able to pick up the participants gazes. This may be part of reason the data collected was highly variable. Also, only some of the problems elicited a framing effect this limited data points that could be analyzed. Another issue is participants' knowledge of being watched and recorded by the eye-tracker may have influenced their behaviors. Also, in this study there was no control of emotional affect, which has been shown to mitigate the effects of framing (Casotti et al. 2012)

Implications

This study provides important insight into process of integrating technology into cognitive research in order to test prominent theories in the field. It demonstrates that the eye-tracker continues to be a critical tool to provide new understanding into how people process information and making decisions. Furthermore, it is possible to use the eye-tracker to record physiology responses that maybe influenced by different factors such as: prejudice, racism, body image, joy, and narcissism.

Future Direction

The immediate next step is conducting a modified replication of this study with more participants and bigger emphasis on successful power priming. This would provide greater insight in interaction between power and framing. If significance were to be found it would merit an in depth analysis of the particular stimuli. Also, this study would control for extraneous factors such as: body position, emotions, optimism, responsibility, and etcetera. Another study could replicate this current study but use different stimuli, such as pictures.

Finally, a study could search and test different techniques that would counteract the negative influence of power and could also be applied in the real world.

Figure 1: The relationship between framing and risky and safe choices concerning questions 1-8.

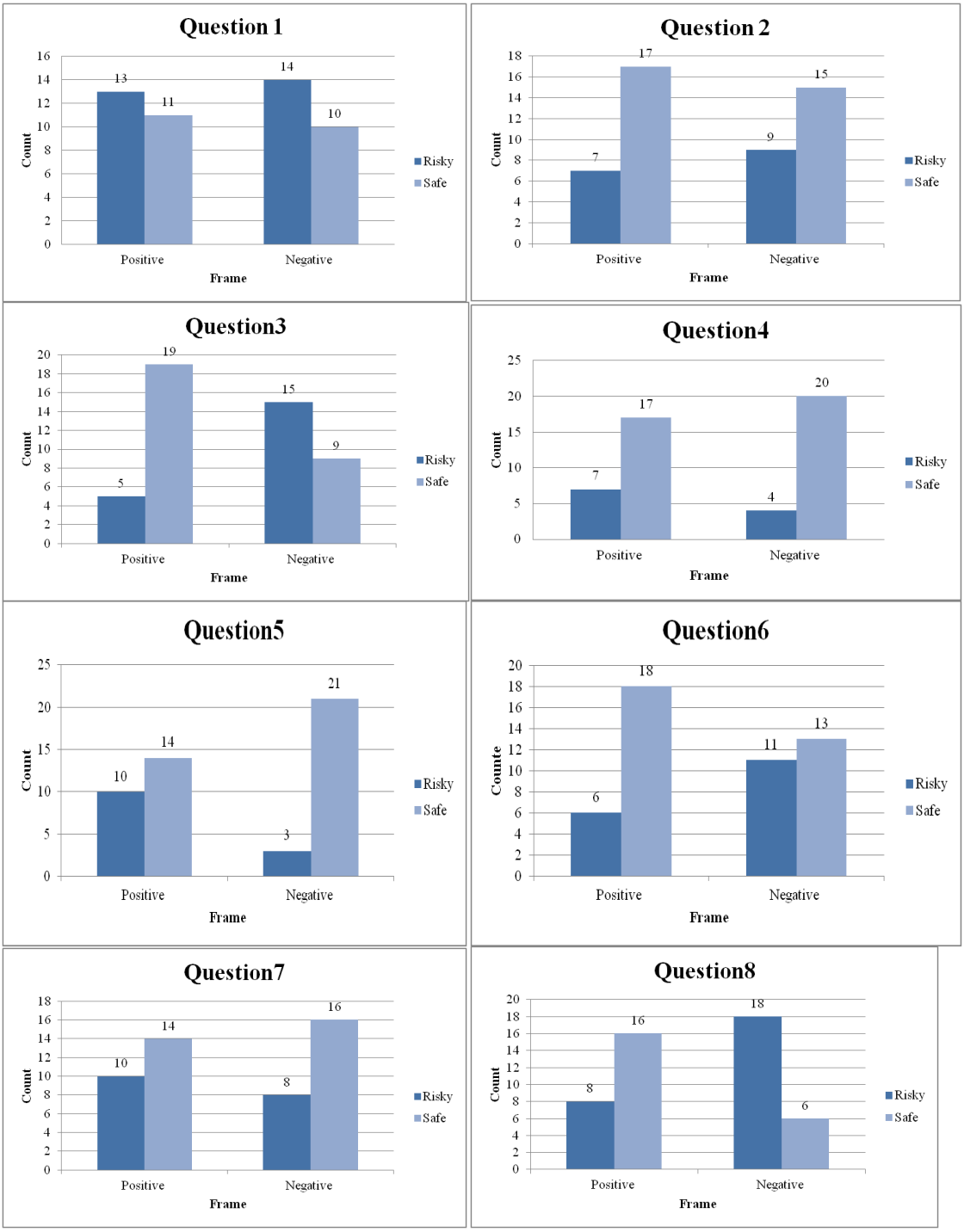
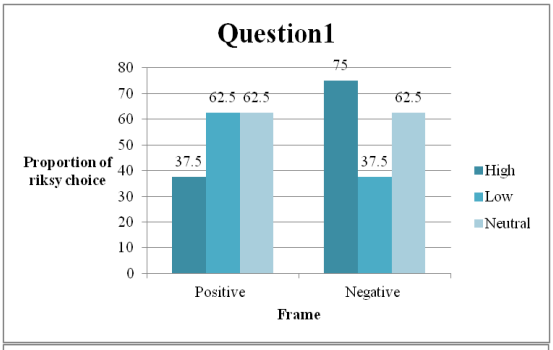
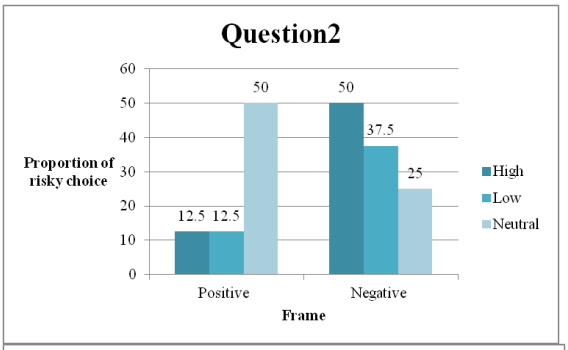
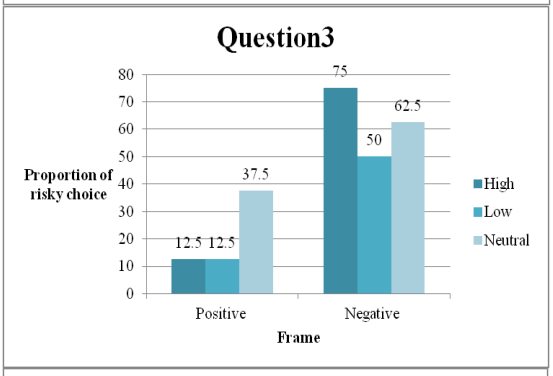
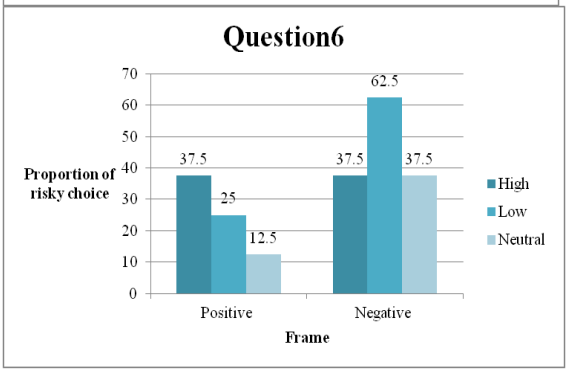


Figure 2: Proportion of risky choices, categorized by power.


Question1
Proportion of riksy choice
80
70
60
50
40
30
20
10
0
37.5
62.5
62.5
75
37.5
62.5
Positive
Negative
Frame
High
Low
Neutral


Question2
Proportion of risky choice
60
50
40
30
20
10
0
12.5
12.5
50
50
37.5
25
Positive
Negative
Frame
High
Low
Neutral


Question3
Proportion of risky choice
80
70
60
50
40
30
20
10
0
12.5
12.5
37.5
75
50
62.5
Positive
Negative
Frame
High
Low
Neutral


Question6
Proportion of risky choice
70
60
50
40
30
20
10
0
37.5
25
12.5
37.5
62.5
37.5
Positive
Negative
Frame
High
Low
Neutral

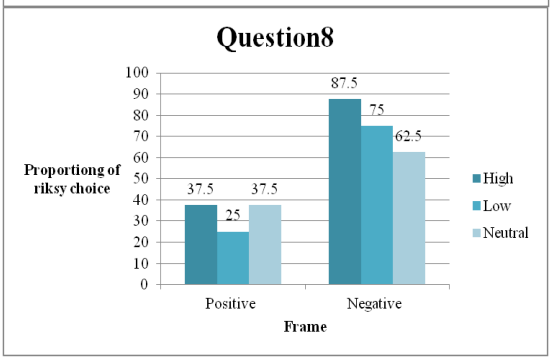

Question8
Proportiong of riksy choice
100
90
80
70
60
50
40
30
20
10
0
37.5
25
37.5
87.5
75
62.5
Positive
Negative
Frame
High
Low
Neutral

Table 1

Average of Risky Choices by Power Condition

	Frame			
	Positive		Negative	
	M	SD	M	SD
Power Condition				
High	31.4	34.4	66.7	33.9
Low	28.1	29.6	53.1	31.2

Table 2

Power and Time per word

	Frame			
	Positive		Negative	
	M	SD	M	SD
Power Condition				
High	0.26	0.12	0.26	0.09
Low	0.52	1.03	0.24	0.13

Table 3
Power and Fixation per word

	Frame			
	Positive		Negative	
	M	SD	M	SD
Power Condition				
High	1.03	0.38	0.98	0.34
Low	0.94	0.34	0.93	0.48

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Appendix A.

SCRAMBLED SENTENCES

Instructions: For each set of words below, make a grammatically correct four word sentence.

Example: grass orange the green is

The grass is green.

1. the arrives captain tomorrow I
2. truth she understood easy the
3. commands she always people has
4. rules the they influenced cheese
5. the square chair around turned
6. team games they the dominates
7. he talk to looked wanted
8. friends wait children with cry
9. executive has the those arrived
10. hungry the cats bananas were
11. child privileged my we is
12. hats birds closets are in
13. bowl triangle round the is
14. floor a control the we
15. likes the me authority I
16. the packed summer class was

SCRAMBLED SENTENCES

Instructions: For each set of words below, make a grammatically correct four word sentence.

Example:

grass orange the green is

The grass is green.

1. the arrives servant tomorrow I
2. truth she understood easy the
3. complied she always people has
4. rules the they obey cheese
5. the square chair around turned
6. team games they the submits
7. he talk to looked wanted
8. friends wait children with cry
9. subordinate has the those arrived
10. hungry the cats bananas were
11. child passive my we is
12. hats birds closets are in
13. bowl triangle round the is
14. floor a yield the we
15. likes the me janitor I
16. the packed summer class was

SCRAMBLED SENTENCES

Instructions: For each set of words below, make a grammatically correct four word sentence
Example:

grass orange the green is

The grass is green.

1. the arrives package tomorrow I
2. truth she understood easy the
3. peaches she always people has
4. rules the they read cheese
5. the square chair around turned
6. team games they the plays
7. he talk to looked wanted
8. friends wait children with cry
9. train has the those arrived
10. hungry the cats bananas were
11. child two my we is
12. hats birds closets are in
13. bowl triangle round the is
14. floor a see the we
15. likes the me puppy I
16. the packed summer class was

Key Scrambled Sentences

High power prime words:

1) Captain
2) Influenced
3) Executive
4) Privileged
5) Control
6) Authority
7) Commands
8) Dominates

Low power prime words:

1) Servant
2) Obey
3) Subordinate
4) Passive
5) Yield
6) Janitor
7) Complied
8) Submits

Neutral prime words:

1) Package
2) Peaches
3) Read
4) Plays
5) Train
6) Two
7) See
8) Puppy

Appendix B.

Decision Making Question & Fillers

Question 1: Disease problem: Modified from Wang (1996).

Positive Frame:
Imagine that the U.S. is preparing for an outbreak of an unusual disease that is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Scientific estimates of the consequences of the programs are as follows:

If program A is adopted, exactly 200 people will be saved.
If program B is adopted, there is 1/3 probability that all 600 people will be saved and a 2/3 probability that all 600 people will be saved.
Which of the two programs would you favor?

Negative Frame:
Imagine that the U.S. is preparing for an outbreak of an unusual disease that is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Scientific estimates of the consequences of the programs are as follows:

If program A is adopted, exactly 400 people will die.
If program B is adopted, there is a 1/3 probability that nobody will die and 2/3 probability that 600 will die.
Which of the two programs would you favor?

Question 2(School Drop Out): Adapted from Fagley and Miller (1990).

Positive Frame:
Imagine that in one particular state it is projected that 1000 students will drop out of school during the next year. Two programs have been proposed to address this problem, but only one can be implemented. Based on the other states' experiences with the programs, estimates of the outcomes that can be expected from each program can be made. Assume for the purposes of this decision that these estimates of the outcomes are accurate and are as follows:

If program 1 is adopted, 400 of the 1000 students will stay in school.
If program 2 is adopted there is 2/5 chance that all 1000 students will stay in school and 3/5 chance that none of the 1000 will stay in school.
Which program would you favor for implementation?

Negative Frame:
Imagine that in one particular state it is projected that 1000 students will drop out of school during the next year. Two programs have been proposed to address this problem, but only one can be implemented. Based on the other states' experiences with the programs, estimates of the outcomes that can be expected from each program can be made. Assume for the purposes of this decision that these estimates of the outcomes are accurate and are as follows:
If program 1 is adopted, 600 of the 1000 students will drop out of school.
If program 2 is adopted there is 2/5 chance that none of the 1000 will drop out of school and 3/5 chance that all 1000 students will drop out of school.
Which program would you favor for implementation?

Question 3: The Cancer Problem. Taken from Fagley and Miller (1987).

Positive Frame
The National Cancer Institute has two possible treatments for cancer, which could become standard treatments across the country.

If treatment 1 is adopted, of every 1000 people will get cancer 400 will be saved.
If treatment 2 is adopted, there is a two-fifths chance that 1000 of every 1000 will be saved and a three-fifths chance that no peoples every 1000 will be saved.
There are adequate resources to implement only one treatment program. Which of the two programs would you favor to national implementation?

Negative Frame
The National Cancer Institute has two possible treatments for cancer, which could become standard treatment across the country.
If treatment 1 is adopted, of every 1000 people who get cancer 600 will die.
If treatment 2 is adopted, there is a two-fifths chance that no people of every 1000 will die and a three-fifths chance that 1000 of every 1000 will die.
There are adequate resources to implement only one treatment program. Which of the two programs would you favor for national implementation?

Question 4: The Home Sale Problem. Adapted from Fagley and Miller (1997).

Positive Frame:
Imagine that three years ago you bought a house in New Jersey. Six months ago, your home was appraised for 36,000 more than you paid for it. Now your employer is transferring you to Chicago, and you must sell your house. Unfortunately the real estate market has declined in recent months, and the best offer you have is only 12,000 more

than you paid for it. You cannot wait for the market to improve; you must sell now. You contacted a real estate broker who has suggested two possible options:

Option A: Sell our house now for the current best offer and save $12,000 of the appreciation.
Option B: Sell your house at an auction. There is 1/3 chance you will save all of the 36,000 appreciation. However, there is a 2/3 chance that you will save none of the $36,000 appreciation.
Which option would you choose?

Negative Frame:

Imagine that three years ago you bought a house in New Jersey. Six months ago, your home was appraised for 36,000 more than you paid for it. Now your employer is transferring you to Chicago, and you must sell your house. Unfortunately the real estate market has declined in recent months, and the best offer you have is only 12,000 more than you paid for it. You cannot wait for the market to improve; you must sell now. You contacted a real estate broker who has suggested two possible options:

Option A: Sell your house now for the current best offer and loose $ 24,000 of the appreciation.
Option B: Sell your house at an auction. There is a 1/3 chance you will lose none of the $ 36,000 appreciation. However, there is a 2/3 chance that you will lose all of the $36,000 appreciation.
Which option would you choose?

Question 5: The Stock Problem. Adapted from Wang (1996).

Positive Frame:
Imagine that you bought $6000 worth of stock from a company that has just filed a claim for bankruptcy recently. The company now provides you with two alternatives to recover some of your money.

If you choose alternative A, you will save $2000 of your money.
If you choose alternative B, you will take part in a random drawing procedure with exactly a one-third probability of saving all of your money, and two-thirds probability of saving none of your money.
Which of the two alternatives would you favor?

Negative Frame:

Imagine that you bought $6000 worth of stock from a company that has just filed a claim for bankruptcy recently. The company now provides you with two alternatives to recover some of your money.

If you choose alternative A, you will lose $4000 of your money.
If you choose alternative B, you will take part in a random drawing procedure with exactly a two-thirds probability of losing are your money, and one-thirds probability of not losing any of your money.
Which of the two alternatives would you favor?

Question 6: Gambling Problem. Modified from Kou et al.(2009).

Positive Frame:
Assume you are rewarded for giving a lot of money. Please choose your favorite from the following alternatives:

If program A is adopted, you will certainly be given 3200.
If problem B is adopted, there is an 80% probability of getting 4000.

Negative Frame:
Assume you are punished for losing a lot of money. Please choose your favorite from the following alternatives:

If program A is adopted, you will certainly lose 3200.
If problem B is adopted, there is an 80% probability of losing 4000.

Question 7: Civil Defense Problem. Taken from Fagley and Miller (1997).

Positive Frame:
A civil defense committee in a large metropolitan area met recently to discuss contingency plans in the event of various emergencies. One emergency under discussion was the following: “A train carrying a very toxic chemical derails and the storage tanks begin to leak. The threat of explosion and lethal discharge of poisonous gas is imminent. If nothing is done, 36,000 people are expected to be killed.”
Two possible actions were considered by the committee. These are described below. Read them and indicate which you would choose.
Option A: Would result in the saving of 12,000 lives.
Option B: Carries with it a 1/3 probability of containing the threat with a saving of 36,000 lives and a 2/3 probability of saving no lives.
Which option would you choose?
Negative Frame:

A civil defense committee in a large metropolitan area met recently to discuss contingency plans in the event of various emergencies. One emergency under discussion was the following: “A train carrying a very toxic chemical derails and the storage tanks begin to leak. The threat of explosion and lethal discharge of poisonous gas is imminent. If nothing is done, 36,000 people are expected to be killed.

Two possible actions were considered by the committee. These are described below. Read them and indicate which you would choose.
Option A: Would result in the loss of 24,000 lives.
Option: Carries with it a 1/3 probability of containing the threat with a loss of 0 lives and a 2/3 probability of losing 36,000 lives.
Which option would you choose?

Question 8: Painting Problems. Adapted from Wang (1996).

Positive Frame:
Imagine that 60 pieces of precious painting in a world-famous museum are accidentally exposed to a disastrous chemical pollution. Two alternatives plans to rescue these art treasures have been proposed. Assume that the exact estimates of the consequences of the plan made by scientist are as follows:

If plan A is adopted, 20 pieces will be saved from the chemical pollution.
If plan B, is adopted, there is a one-third probability that all the paintings will be saved, and two-thirds probability that none of these painting will be saved.
Which of the two plans would favor?

Negative Frame:
Imagine that 60 pieces of precious painting in a world-famous museum are accidentally exposed to a disastrous chemical pollution. Two alternatives plans to rescue these art treasures have been proposed. Assume that the exact estimates of the consequences of the plan made by scientist are as follows:

If plan A is adopted 40 pieces will be destroyed by the chemical pollution.
If plan B is adopted, there is a one-third probability that none of these paintings will be destroyed, and two-thirds probability that all of these paintings will be destroyed.
Which of the two plans would you favor?

Filler Problems: Modified from Kou et al. (2009). All fillers were modified from the original version. .

Fillers 1: Positive
Consider the following alternatives that will give you different rewards. Please choose the one you favor the most:
If program A is adopted, you have a 45% chance of receiving 6000.
If program B is adopted, you have a 90% chance of receiving3000.
Which would you choose?

Fillers1: Negative
Consider the following alternatives that will give you different rewards. Please choose the one you favor the most:
If program A is adopted, you have a 45% chance of losing 6000.
If program B is adopted, you have a 90% chance of losing 3000.
Which would choose?

Fillers 2: Positive
You have been given 2000 dollars and must choose from two alternatives:
If program A is adopted, you have a chance to flip a coin. If it lands on heads, you will win 1000 dollars. If it lands on tails you win nothing.
If program B is adopted, regardless of the outcome, you will win 500 dollars.
Which one do you choose?

Fillers 2: Negative
You have been given 2000 dollars and must choose from two alternatives:
If program A is adopted, you have the chance to flip a coin. If it lands on heads, you will lose 1000 dollars. If it lands on tails you will lose nothing.
If program B is adopted, regardless of the outcome, you will lose 500 dollars.
Which do you choose?

Fillers 3: Positive
Consider the following alternatives that will give you different rewards. Please choose the one you favor the most:
If program A is adopted, you have a 20% chance of winning 4000.
If program B is adopted, you have a 25% chance of winning 3000.

Fillers3: Negative
Consider the following alternatives that will give you different rewards. Please choose the one you favor the most:
If program A is adopted, you have a 20% chance of losing 4000.
If program B is adopted, you have a 25% chance of losing 3000.

Fillers 4: Positive

Consider the following two-stage game. In the first stage, there is a probability of 0.75 of ending the game without winning anything, and a probability of 0.25 of moving onto the second stage. If you reach the second stage, you have a choice between the following:
If program A is adopted, you have an 80% chance of winning 4000.
If program B is adopted, you will certainly win 3000.

Fillers 4: Negative

Consider the following two-stage game. In the first stage, there is a probability of 0.75 of ending the game without winning anything, and a probability of 0.25 of moving onto the second stage. If you reach the second stage, you have a choice between the following:
If program A is adopted, you have an 80% chance of losing 4000.
If program B is adopted, you will certainly lose 3000.

Appendix C.

Generalized Sense of Power Scale

In ratings each of the items below please use the following scale

1	2	3	4	5	6	7
Disagree Strongly	Disagree	Disagree A Little	Neither Agree or Disagree	Agree A Little	Agree	Agree Strongly

In my relationship with others …..

_____I can get people to listen to what I say.

_____My wishes do not carry much weight.

_____Even if I voice them, my views have little sway.

_____I think I have a great deal of power.

_____My ideas and opinions are often ignored.

_____Even when I try, I am not able to get my way.

_____If I want to, I get to make the decisions.

Demographic Questions

Age:
Gender:
Is English your first language?
If no, what was your first language?
Have you seen similar decision making questions before? (Yes/No)

Appendix D.

	CB-1	CB-3	CB-5	CB-7	CB-9	CB-11	CB-13	CB-15
Negative	**F1-N**	**F1-N**	**F1-N**	**F1-N**	**F1-N**	**F1-N**	**F1-N**	**F1-N**
Positive	**Q1-P**	**Q8-P**	**Q7-P**	**Q6-P**	**Q5-P**	**Q4-P**	**Q3-P**	**Q2-P**
Negative	**Q2-N**	**Q1-N**	**Q8-N**	**Q7-N**	**Q6-N**	**Q5-N**	**Q4-N**	**Q3-N**
Positive	**F2-P**	**F2-P**	**F2-P**	**F2-P**	**F2-P**	**F2-P**	**F2-P**	**F2-P**
Negative	**Q3-N**	**Q2-N**	**Q1-N**	**Q8-N**	**Q7-N**	**Q6-N**	**Q5-N**	**Q4-N**
Positive	**Q4-P**	**Q3-P**	**Q2-P**	**Q1-P**	**Q8-P**	**Q7-P**	**Q6-P**	**Q5-P**
Negative	**F3-N**	**F3-N**	**F3-N**	**F3-N**	**F3-N**	**F3-N**	**F3-N**	**F3-N**
Positive	**Q5-P**	**Q4-P**	**Q3-P**	**Q2-P**	**Q1-P**	**Q8-P**	**Q7-P**	**Q6-P**
Negative	**Q6-N**	**Q5-N**	**Q4-N**	**Q3-N**	**Q2-N**	**Q1-N**	**Q8-N**	**Q7-N**
Positive	**F4-P**	**F4-P**	**F4-P**	**F4-P**	**F4-P**	**F4-P**	**F4-P**	**F4-P**
Negative	**Q7-N**	**Q6-N**	**Q5-N**	**Q4-N**	**Q3-N**	**Q2-N**	**Q1-N**	**Q8-N**
Positive	**Q8-P**	**Q7-P**	**Q6-P**	**Q5-P**	**Q4-P**	**Q3-P**	**Q2-P**	**Q1-P**
	CB-2	**CB-4**	**CB-6**	**CB-8**	**CB-10**	**CB-12**	**CB-14**	**CB-16**
Positive	**F1-P**	**F1-P**	**F1-P**	**F1-P**	**F1-P**	**F1-P**	**F1-P**	**F1-P**
Negative	**Q1-N**	**Q8-N**	**Q7-N**	**Q6-N**	**Q5-N**	**Q4-N**	**Q3-N**	**Q2-N**
Positive	**Q2-P**	**Q1-P**	**Q8-P**	**Q7-P**	**Q6-P**	**Q5-P**	**Q4-P**	**Q3-P**
Negative	**F2-N**	**F2-N**	**F2-N**	**F2-N**	**F2-N**	**F2-N**	**F2-N**	**F2-N**
Positive	**Q3-P**	**Q2-P**	**Q1-P**	**Q8-P**	**Q7-P**	**Q6-P**	**Q5-P**	**Q4-P**

Negative	**Q4-N**	**Q3-N**	**Q2-N**	**Q1-N**	**Q8-N**	**Q7-N**	**Q6-N**	**Q5-N**
Positive	**F3-P**	**F3-P**	**F3-P**	**F3-P**	**F3-P**	**F3-P**	**F3-P**	**F3-P**
Negative	**Q5-N**	**Q4-N**	**Q3-N**	**Q2-N**	**Q1-N**	**Q8-N**	**Q7-N**	**Q6-N**
Positive	**Q6-P**	**Q5-P**	**Q4-P**	**Q3-P**	**Q2-P**	**Q1-P**	**Q8-P**	**Q7-P**
Negative	**F4-N**	**F4-N**	**F4-N**	**F4-N**	**F4-N**	**F4-N**	**F4-N**	**F4-N**
Positive	**Q7-P**	**Q6-P**	**Q5-P**	**Q4-P**	**Q3-P**	**Q2-P**	**Q1-P**	**Q8-P**
Negative	**Q8-N**	**Q7-N**	**Q6-N**	**Q5-N**	**Q4-N**	**Q3-N**	**Q2-N**	**Q1-N**