

The Pennsylvania State University

The Graduate School

**RATIONALITY AND SITUATIONAL STRENGTH:
USING STRONG SITUATIONS TO DEBIAS DECISION-MAKING**

A Thesis in

Psychology

by

Louis Boemerman

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Master of Science

May 2021

The thesis of Louis Boemerman was reviewed and approved by the following:

Rustin Meyer
Assistant Professor of Psychology
Thesis Advisor

James LeBreton
Professor of Psychology

Stephen Wilson
Associate Professor of Psychology

Kristin Buss
Professor of Psychology
Psychology Department Head

Abstract

The human condition is marked by irrational tendencies in behavior, thinking, and decision-making (Tversky & Kahneman, 1974). However, disparate literatures have found that there are stable individual differences in rational decision-making tendencies (Scott & Bruce, 2005), and the expression of individual differences in general can be influenced by the strength of situations (Meyer, Dalal, & Hermida, 2010). Combining these ideas, the primary goal of this paper was to test whether the expression of individual differences in rationality can be influenced by situational strength in order to encourage those who are most prone to irrational decision-making styles to use more rational strategies. This goal was accomplished through a 3 x 2 online decision-making experiment using undergraduate students with “strong,” “moderate,” and “weak” situational strength as the three levels of IV₁ and “General” and “Rationality-Specific” situational strength as the two levels of IV₂. I hypothesized that participants in the conditions that emphasize rational behavior will be more likely to engage in rational decision-making behavior, thereby performing better on the decision-making task than participants in the “general” situational strength conditions or the control condition. I also hypothesized that this relationship is mediated by increased time spent on the task. Lastly, I also hypothesized that participants in the general situational strength conditions would be more likely to rely on their intuition and engage in less rational decision-making behavior, and therefore perform worse on the decision-making task than participants in the “rational” situational strength conditions. Findings indicated that while rational decision-making style and rational situational strength both predicted decision-making performance, time spent on task had no impact on these relationship.

TABLE OF CONTENTS

INTRODUCTION.....	1
METHODS.....	15
ANALYSES.....	20
RESULTS.....	24
DISCUSSION.....	40
REFERENCES.....	47
APPENDIX A: Situational Strength Vignettes.....	54
APPENDIX B: Irrational Escalation Scale.....	57

Introduction

Humans' well-documented irrational tendencies (Tversky & Kahneman, 1974) have been shown to lead to a host of negative work outcomes such as illegally discriminating hiring practices, decreased performance, poor job-choice, and increased job stress (Philips, Fletcher, Marks & Hine, 2016; Singh & Greenhaus, 2004; Thunholm, 2008; Uhlman & Cohen, 2007). Although no human is perfectly rational, previous literature has shown that there are individual differences in rationality (Bruine de Bruin, Parker, & Fischhoff, 2007; Scott & Bruce, 1995). In order to avoid the pitfalls of irrational decision-making, previous research has explored a variety of interventions aimed at fostering the manifestation of rational decision-making in individuals (Morewedge, Yoon, Scopelliti, Symborski, Korris, & Kassam, 2015). While some of these interventions (discussed in detail subsequently) have been shown to be effective, they are all either expensive, difficult to implement, or not optimized around the principles of human behavior.

Around the same time Tversky and Kahneman began uncovering systematic irrationalities in decision-making, other psychologists began taking seriously the idea that human behavior can be best understood by simultaneously accounting for both individual differences and the situations they experience (Mischel, 1977). One concept to come out of this line of thinking that has grown in popularity in recent years is situational strength, which generally states that situations have the potential to override people's natural behavioral tendencies in order to encourage externally driven behavioral uniformity (Mischel 1977; Meyer & Dalal, 2009). Namely, strong situations are those that tamp down the manifestation of individual differences by encouraging uniformity in behavior, whereas weak situations are those that allow individual differences to freely manifest themselves in a diversity of behaviors.

Indeed, the classic example of a strong situation is a red traffic light, wherein the societally prescribed behavior is obvious, norm-supported, and enforced through officially sanctioned policing. The classic example of a weak situation is a yellow traffic light, wherein the appropriate behavior is ambiguous and subjective, so it is up to the individual's discretion to determine whether they stop or not. The key distinction here is that in strong situations, people receive very clear and consistent signals about how they should behave. However, signals in weak situations are ambiguous and inconsistent, leaving it up to the person to interpret the situation in order to determine how they should behave. This leads people to rely on their individual differences, which leads to a lack of uniformity in behavior across individuals.

In organizations, the strength of a situation is generally communicated by managers and coworkers, giving it the potential to be an inexpensive and easy-to-implement system for workplace-based behavioral change (Alaybek, Dalal, Sheng, Morris, Tomassetti, & Holland, 2017). As such, the primary goal of this paper is to test whether situational strength may be used as an effective intervention for promoting rational decision-making. The remainder of this introduction will review past research efforts in rationality as an individual difference and critically examine previous attempts to promote rationality through debiasing efforts. I will close this introduction by arguing that situational strength has the potential to be a novel and useful method of debiasing.

Individual Differences in Rationality

Differing tendencies for methods of decision-making are generally referred to as “decision-making styles” or “thinking-styles” (Zhang & Highhouse, 2018). Although still in its infancy, research on decision-making styles suggests that this class of individual differences can be separated from related classes of individual differences such as cognitive ability and personality (Zhang & Highhouse, 2018). Decision-making styles are defined as “the learned, habitual response pattern exhibited by an individual when confronted with a decision situation” (Scott & Bruce, 1995, pg. 3). In contrast to personality, a general pattern of behavior, decision-making styles involve a habitual pattern of gathering and utilizing information in a certain way during a decision-making situation (Scott & Bruce, 1995). Decision-making styles differ from cognitive ability in that they do not imply an ability to retain information, only a tendency for obtaining and utilizing certain forms of information during a decision-making process.

Decision-making styles as individual differences were first measured by Scott and Bruce (1995) who described five major styles: rational, intuitive, dependent, spontaneous, and avoidant. Although there are five decision-making styles in total, rational and intuitive decision-making are the most highly studied (Philips et al., 2017). Rational decision-making style (RDMS), the primary focus of the present study, is characterized by a thorough search for, and logical evaluation of, alternative choices when making a decision. In contrast, an intuitive decision-making style is characterized by a reliance on hunches and feelings. Dependent decision-making style is characterized by a search for and dependence on advice and direction from others. Spontaneous decision-making style is characterized by a sense of immediacy and a desire to get

through the decision-making process as soon as possible. Lastly, avoidant decision-making style is characterized by avoiding decision-making scenarios.

Rational decision-making styles are associated with a number of important positive outcomes, and failure to utilize a rational decision-making style is related to negative outcomes. Indeed, initial meta-analytic data finds that the tendency for rational thinking predicts job performance better than conscientiousness but not as well as intelligence, though it does incrementally predict performance above and beyond intelligence (Alaybek, Wang, Boemerman, Dubrow, & Dalal, under review). Furthermore, rational decision-making style also predicts higher performance on decision-making tasks (Philips, Fletcher, Marks & Hine, 2016) and is the only decision-making style related to peer ratings of decision-making performance (Wood & Highhouse, 2014). While primarily studied as predictors of performance outcomes, decision-making styles have also been shown to relate to certain evaluative and attitudinal outcomes. For example, rational decision-making style has been shown to be useful in predicting job-person fit (Singh & Greenhaus, 2004) and job satisfaction (Crossley & Highhouse, 2002) whereas avoidant decision-making style (a less rational approach) has been shown to predict increased stress levels, as measured using cortisol levels obtained through saliva swabs (Thunholm, 2008).

Hypothesis 1a: There is a significant positive relationship between rational decision-making style and decision-making performance on the Monty Hall problem.

Hypothesis 1b There is a significant positive relationship between rational decision-making style and decision-making performance on the Irrational Escalation Scale.

Debiasing

Given the positive effects of rationality, previous research has explored a variety of “debiasing” interventions designed to promote rational decision-making (Morewedge, Yoon, Scopelliti, Symborski, Korris, & Kassam, 2015). The debiasing literature has primarily explored three types of interventions to promote rationality: incentives, optimizing choice architecture, and training (Morewedge et al., 2015). Although each of these approaches have shown positive effects, they can also be challenging to implement in organizations. The following subsections briefly review each of these three categories of debiasing interventions, then propose situational strength as a new potential debiasing strategy that may help to address several of these limitations.

Incentives. Incentives, motivators that are contingent upon certain actions, have been shown to be effective at improving rational decision-making in a variety of contexts (Morewedge et al., 2015). For example, incentivization has been shown to improve compliance with diet (Schwartz, Mochon, Wyper, Maroba, Patel, Ariely, 2014), exercise (Charness & Gneezy, 2009), weight loss (John, Loewenstein, Troxel, Norton, & Fassbender, 2011), and smoking cessation (Volpp et al., 2009). However, incentives are not necessarily effective at getting people to behave rationally in all contexts. For example, incentives are related to decreased task performance if they override intrinsic motivation (Gneezy, Meier, & Rey-Biel, 2011), suggesting that incentives are only partially effective at shifting human behavior. Furthermore, incentive research has generally not incentivized rational behavior overall, but simply incentivized behaviors that are generally rational (eating healthily, not smoking, etc.).

While not generally studied in organizations in the past, implementing incentives to encourage rationality in the workplace has the potential to be very expensive, as most past

research on incentives is based on the idea that incentives are financial. To provide incentivization for rational behavior in decision-making, a given organization must fund (or otherwise make available) the particular incentive in a specific intervention (e.g., cash, time off). Furthermore, incentives may only be instituted around performing certain behaviors in certain situations. It is much more challenging for an organization to incentivize rational behavior in general, as every incentive must be tied to a specific action. Put simply, incentives are inconvenient debiasing methods for two reasons. First, incentives are expensive to the organization itself. Second, incentives are not generalizable to organizational environments because they are attached to specific, well-defined behaviors.

Choice architecture. Optimizing choice architecture generally involves adding information to decisions that may be helpful or framing decisions in a way that takes advantage of already existing cognitive biases in a benevolent manner (Morwedge et al., 2015). For example, “nudges” are probably the most popular application of optimizing choice architecture. “Nudges” involve framing choices in a way that leads individuals to make better decisions using cognitively biased ways of thinking (Thaler & Sunstein, 2008). For example, individuals are more likely to engage in voting if exposed to a report stating that voter turnout is high (taking advantage of the human tendency to irrationally prefer conformity) than when they are exposed to a report saying voter turnout is low (Gerber & Rogers, 2009). Another classic example is that changing the packaging of meats from 75% lean to 25% fat leads consumers to choose meat with lower levels of fat (Levin & Gaeth, 1988). Individuals are also in general more likely to choose to stay in an opt-out flu shot program, than they are to join an opt-in program, as the former implies remaining with the status quo (Chapman, Li, Colby, & Yoon, 2010).

While nudges have generally been shown to be effective at promoting rational behavior, simply providing more information about a problem does not appear to aid in promoting rational behavior and may in fact decrease it (Morewedge et al., 2015). For example, smokers may overestimate the risks of smoking, yet choose to engage in this behavior anyway. Thus, those interventions that aim to provide smokers with accurate information have been shown to sometimes increase smoking behavior, as the actual outcomes of smoking are potentially less extreme than the individual originally thought (Downs, Loewenstein, & Wisdom, 2009). Furthermore, providing calorie information on food products does not appear to increase healthy eating behaviors, because simply providing individuals with more information does not guarantee that they will utilize this information in a rational or adaptive way (Downs et al., 2009).

Those who are interested in implementing optimized choice architecture run into similar problems as they do with the implementation of incentives. Namely, for optimized choice architecture to work, it must be implemented on a problem-level basis. For example, in order to use nudges to encourage people to make decisions more rationally, each decision an individual encounters (e.g., whether to smoke or not, what quantities and types of food to eat) must be framed as individual nudges (i.e., it is presently not known if it is possible to create a single nudge to encourage healthy versus unhealthy behaviors generally). This is problematic for organizations that are looking to increase the performance of their employees by encouraging them behave more rationally overall because it is impossible to design every specific task or choice an employee encounters with choice architecture that universally leads to rational decisions.

Training. Training interventions are a third form of debiasing effort that focus on teaching participants about the cognitive biases and types of irrationality that humans are prone to, then discouraging them from relying on these tendencies. Findings show that an individual training intervention focused on a number of specific cognitive biases was capable of reducing specific cognitive bias occurrence by between eighteen to thirty-one percent during post-training decision-making. However, only seventy-five percent of these improvements were sustained over a two-month window (Morewedge et al., 2015). Similarly, debiasing training focuses on teaching inferential decision-making shortcuts that are intended to encourage more thorough strategies (e.g., “consider-the-opposite,” “consider-an-alternative”) and has been shown to have mixed results at improving decision-making, but more empirical tests of these strategies are needed (Dalal & Bolunmez, 2016, Lilienfeld, Ammirati, & Landfield, 2009; Milkman et al., 2009; Morewedge et al., 2015).

Findings regarding the effectiveness of other training interventions are more mixed than those focused on specific biases. Prior to Morewedge et al.’s, (2015) general cognitive bias training intervention, decision-making was generally only improved by training in certain contexts. For example, Frame of Reference (FoR) training is a common form of debias training used in organizations (Roch, Woehr, Mishra, & Kieszczyńska, 2012) that involves educating performance raters on the cognitive biases that may skew their decision-making in hiring and promotion decisions (DeNisi & Murphy, 2017; Roch et al., 2012). Although FoR training has generally been shown to have a positive impact on decision-making in hiring and promotion contexts (Roch et al., 2012), it is generally only used in performance assessment contexts. Furthermore, individuals who have been trained to make debiased decisions in certain areas of expertise (weather forecasting, firefighting, chess, etc.), fall prey to cognitive biases in other

contexts just as much as individuals with no debias training at all (Arkes, 1991; Milkman, Chugh, & Bazerman, 2009; Murphy & Winkler, 1974; Phillips et al., 2004; Wagenaar & Keren, 1986). So, although not all training interventions need to be customized to specific situations, they are generally costly to implement (both in terms of time and money) and do not necessarily generalize to unrelated decision contexts. A potential alternative that may help to circumvent each of these limitations is debiasing through situational strength.

Situational Strength

Interactions between individuals and the situations they experience have been a topic of study in psychology for decades (Hattrup & Jackson 1996; Milgram, 1965; Mischel, 1977; Snyder & Ikes, 1985). Mischel (1977) proposed that the study of human behavior move away from the idea that behavior is either a product of “the person” or “the situation,” suggesting instead that behavior is better conceptualized as the interaction of both. More specifically, Mischel suggested that the “strength” of one’s situation may influence whether an individual’s behavior is primarily influenced by their personality characteristics or conforms to the standards of the situation. Since then, it has been suggested that this claim was largely accepted yet untested. For example, a review concluded that “the situation strength hypothesis has been transformed from hypothesis to conventional wisdom” “has been institutionalized as an axiom in textbooks” and that “this transformation from hypothesis to dogma is based more on the plausibility of the hypothesis and sheer repetition than on any empirical evidence” (Cooper & Withey, 2009 p. 64). However, in the past decade, there have been multiple studies conducted on the topic that have helped to establish the theoretical and empirical foundations that Cooper and

Withey correctly noted were previously missing (e.g., Meyer, Dalal, & Bonaccio, 2009; Meyer, Dalal, & Hermida, 2010; Meyer et al., 2014; Meyer, Kelly, & Bowling, 2018).

The general idea behind situational strength is that the more a situation communicates what is expected of those individuals participating in it, the more likely those individuals are to conform to the pressures of the situation. While individuals may desire to behave in a way that is in-line with their general pattern of behavior, they may subjugate these desires and suppress their normal patterns of behavior if it is more advantageous for them to conform to the situation. As such, situational strength is generally postulated as a moderator in the relationship between individual differences (especially those pertaining to personality) and behavior. As the strength of the situation increases, the influence that one's personality has on their behavior is generally weakened (e.g., observed correlations between personality and behavior are attenuated). In contrast, as the strength of the situation decreases, the more influence one's personality will have on their behavior (i.e., decreasing strength exacerbates observed correlations between personality and behavior)

Hypothesis 2a: Situational strength will moderate the relationship between rational decision-making style and decision-making performance on the Monty Hall problem, such that this relationship will be attenuated as situational strength increases because stronger situations will lead to improved decision-making performance.

Hypothesis 2b: Situational strength will moderate the relationship between rational decision-making style and decision-making performance on the Irrational Escalation Scale, such that this relationship will be attenuated as situational strength increases because stronger situations will lead to improved decision-making performance.

Time-on-task as a Potential Mediating Mechanism

While it is well established that a rational decision-making style is positively related to decision-making performance, there has been little to no exploration into mediators of this relationship (Philips et al., 2018). If rational decision-making style leads one to spend more time contemplating the task at hand in a rational way, this could increase the likelihood that a rational conclusion is reached. Further, simply spending more time on a given task should not directly lead to higher levels of decision-making performance. Instead, how one uses the time spent on task should predict decision-making performance. Individuals who are not using time on task to consider the problem at hand in a rational way should not have higher levels of decision-making performance, because they are not using that time in an effective and rational manner. As such, I will also contribute to the literature by testing this potential mediator in the relationship between rational decision-making style and performance.

Hypothesis 3: Time spent on task mediates the relationship between decision-making style and decision-making performance.

It is important to note that most recent empirical research on situational strength has examined its effects in work settings, so the relationship that has been of primary interest is that of conscientiousness on job performance. In the present study, however, situational strength is intended to aid in understanding the relationship between decision-making style and rational decision-making. As such, in this study I am specifically interested in situational strength as it pertains to encouraging rational behavior. For the purposes of this paper, I not only propose testing the effects of situational strength in general, but also a form of situational strength that encourages rational behavior. I refer to this form of situational strength as situational strength with respect to rationality (described subsequently).

Situational Strength is generally thought to vary based on four dimensions: clarity, consistency, consequences, and constraints (Meyer, Dalal, & Hermida, 2010), with each dimension communicating what is expected of behavior in a given situation, but in a somewhat different way. Clarity is defined as “the extent to which cues regarding work-related responsibilities or requirements are available and easy to understand” (p. 125). Consistency is defined as “the extent to which cues regarding work-related responsibilities or requirements are compatible with each other” (p. 126). Constraints are defined as “the extent to which an individual’s freedom of decision and action is limited by forces outside his or her control” (p. 126). Finally, consequences are defined as “the extent to which decisions or actions have important positive or negative implications for any relevant person or entity” (p. 127).

Potential advantages of situational strength over other forms of debiasing

A situational strength-based perspective has three potential advantages over other forms of debiasing. First, in contrast to training and incentives, situational strength should theoretically be relatively inexpensive to implement, as the primary method by which situational strength is implemented is simply through interpersonal communication on the part of upper management, immediate supervisors, and coworkers (Alaybek et al., 2017). Second, in contrast to incentives and optimizing choice architecture, situational strength is woven into the fabric of an organization/occupation/industry, opposed to needing to be enacted on a case-by-case basis. For example, situational strength has the potential to encourage an overall climate of rational behavior in all decision-making in a given organization as work environments would convey consistent messages about the preference for rationality over other possible decision-making strategies, even in cases where alternatives may appear more appealing and/or less labor intensive. Lastly, situational strength with respect to rationality encourages an approach-oriented

strategy towards rationality that focuses on how decisions should be made, whereas existing training programs encourage an avoidance-oriented strategy toward rationality by focusing on what strategies (e.g., biases/heuristics) should not be implemented. This focus is potentially advantageous as previous research on performance improvement strategies (e.g., goal setting) has shown that approach-oriented strategies are generally more effective than avoidance-oriented strategies (Elliot & Sheldon, 1997).

Situational Strength as a Potential Debiasing Intervention

Situational strength has been shown to be effective at influencing behaviors traditionally associated with the manifestation of personality characteristics. For example, Meyer, Dalal, & Bonaccio (2009) meta-analytically demonstrated that situational strength moderates the relationship between conscientiousness and job performance by encouraging conscientious behaviors from employees regardless of their standing on trait conscientiousness. This finding in-turn leads to the conclusion that by increasing situational strength, employers may be able to increase the job performance of their employees, regardless of whether the organization initially hired highly conscientious employees. I hypothesize that this effect will extend to decision-making styles, as they are also a form of individual difference. More specifically, I hypothesize that individuals will engage in rational decision-making in situations wherein rationality is emphasized. Thus, in order to increase the likelihood of rational behavior, rationality must be emphasized specifically. If a strong situation emphasizes rational decision-making, the predictive effects of individual differences in rational decision-making style should be attenuated.

As outlined previously, I propose that the effect of decision-making style occurs indirectly, with time on task as a mediator, such that those who engage in rational decision-making spend more time contemplating the task at hand in order to reach a rational decision.

Critically, however, spending additional time on-task is not necessarily enough to guarantee increased performance, as additional time must also be used wisely. Thus, one of the present study's primary predictions is that both forms of situational strength (strength in general and strength with respect to rationality) will lead to increased time-on-task, but only strength with respect to rationality will increase time-use in a way that translates into increased rational performance.

Hypothesis 4a: Both situational strength in general and situational strength with respect to rationality positively moderate the relationship between decision-making style and time, such that the positive relationship between decision-making style will be increased by situational strength.

Hypothesis 4b: Only situational strength with respect to rationality moderates the relationship between time spent on task, and decision-making performance, such that the positive relationship between time on task and decision-making performance will be increased by situational strength with respect to rationality.

Methods

Participants

Participants were 234 undergraduate students from a state-related university in the northeastern United States of America. This sample size was based on a power analysis with $\beta = 0.80$ for a small (0.15) to medium (0.25) effect size at $p < .05$ (Cohen, 1977; Cohen, 1988). The size of this sample is consistent with a power analysis suggesting a target N of 200 to 500.

Materials

Decision-Making Styles. Scott & Bruce (1995)'s twenty-four item decision-making style scale was used to measure the preferred decision-making styles of participants. This measure captures each of the five decision-making styles: Rational ("I make decisions in a logical and systematic way"), Intuitive ("When making decisions, I rely upon my instincts"), Dependent ("I often need the assistance of other people when making important decisions"), Avoidant ("I avoid making important decisions until the pressure is on"), and Spontaneous ("I generally make snap decisions"). The response scale for this measure involves a 5-point Likert scale ("Strongly Disagree," "Disagree", "Neither agree nor disagree", "Agree", "Strongly Agree"). Cronbach's alpha estimate of internal consistency was .76 (Scott & Bruce, 1995).

Situational Strength Vignettes. The present study used a 3 x 2 experimental vignette design, with three levels of situational strength (weak, moderate, and strong) and 2 levels of focus (strength in general and strength with respect to rationality). Despite this structure yielding six unique conditions, it was decided by the authors of this study that 'weak in general' and 'weak with respect to rationality' are theoretically identical. Therefore, five situational strength intervention vignettes were created and are included in the Appendix 1. All vignettes begin with the prompt:

Imagine you are in a workplace scenario. Your department at work has a number of current problematic scenarios that need to be solved. Your supervisor has asked you to resolve these problems (which will be presented to you on the next screen).

The Monty Hall Problem. I assessed rational decision-making using the Monty Hall Problem (Selvin, 1975). The Monty Hall Problem is a logic puzzle which requires the participant to override their gut or “intuitive” decision-making instinct in order to think through the task and get the right answer. The Monty Hall Problem is as follows:

Suppose you're on a game show, and you're given the choice of three doors: Behind one door is a car; behind the others, goats. You pick a door, say No. 1, and the host, who knows what's behind the doors, opens another door, say No. 3, which has a goat. He then says to you, "Do you want to pick door No. 2?" Is it to your advantage to switch your choice?" (Selvin, 1975, pg. 134).

The most common choice is to not switch one's answer. However, the correct choice is to change one's answer to door number two because the switching your answer is found to give contestants a two-thirds chance of winning the car, whereas staying with one's original choice only has a one-third chance of winning the car. This is due to the fact that the contestant has more information about the second door once the first door has been eliminated. This measure is scored dichotomously as correct or incorrect based on this single choice.

Irrational Escalation Scale. I also used the Irrational Escalation Scale to measure rational decision-making (Jackson, Howes, Kausel, Young, & Loftis, 2018). The Irrational Escalation Scale consists of five different chronologically linked decisions in which participants are asked to make an investment choice. The first investment decision question is:

You are the Vice President of Operations for a mid-sized high-tech manufacturing firm. You have 10 million dollars and 3 years to complete a research project that will develop a radar-scrambling device that would render a plane undetectable by conventional radar, in effect, a radar-blank plane. Prior to the beginning of the project, Steve, the project engineer, informs you that he does not think that all 10 million dollars will be needed to successfully complete the project, but he does think that he will need at least 5 million dollars to complete the project. Between 5 million dollars and 10 million dollars, how much money would you like to invest in the project? \$_____.

Following this decision, each of the four decisions that follow concern results from the initial investment. After the first questions, each following question portrays the project from the initial investment decision as getting continually worse. The participant is presented with a dichotomous decision in the final four questions, on whether to continue investing in the project or not. For example, the second investment decision question is:

Two years after the project started, Steve retired from the company. Jackie is the new project engineer. You meet with Jackie to get an update on the project. Jackie informs you that Steve used the money you initially invested to purchase inexpensive materials that are of poor quality. As a result, all of the computer components in the plane keep short-circuiting. Jackie says that she is certain she can remedy the mistake, but that she will need an additional 3 million to 6 million dollars in funding. The decision you face now is to either abandon the project or authorize more funding to continue this radar-scrambling project. Authorize more funding _____ OR Abandon the project _____.

If you choose to continue investing in the project: between 3 million dollars and 6 million

dollars, how much money would you like to authorize to continue the radar-scrambling plane? \$_____”.

At every subsequent stage, the decision to continue investing becomes increasingly more irrational, with abandoning the project on the second decision being the most rational choice.

A score is extracted from these items by totaling the total amount of money one chooses to invest, indicating the degree to which they chose to continue with their choice despite it being irrational, and how much damage their irrationality has on company outcomes. Because scoring higher on the IES implies worse performance on the task, the scoring on the IES was reverse coded in order to make the results more easily interpretable.

Procedure

Participants were first asked to complete a measure of dispositional decision-making style (Scott & Bruce, 1995). Participants were then prompted with one of five situational strength vignettes (weak, moderate general situational strength, moderate rational situational strength, strong general situational strength, or strong rational situational strength) in which they were asked to imagine they are in a workplace scenario and that their department has a number of current problematic scenarios that need to be solved (see Appendix). Only one ‘weak’ condition was used, because a generally weak situation and a weak situation with respect to rationality are conceptually identical. These vignettes were created by subject matter experts in situational strength.

The primary distinction between the general strength vignettes and rational strength vignettes is that the general strength vignettes are worded in a way to emphasize the effort required from the participant (similarly to the ways in which workplace situational strength

should encourage conscientious behaviors among employees). In contrast, the rational situational strength vignettes emphasize the amount of thought required from the participant. For example, the strong general situational strength condition uses language such as “Your supervisor told you to put a lot of effort into this task.” In contrast, the strong with respect to rationality condition uses language such as “Your supervisor told you to put a lot of thought into this task.”

Following this prompt, participants completed the Monty Hall Problem (Selvin, 1975) and the Irrational Escalation Scale (Jackson et al., 2018). These dependent variable measures were randomized in what order they appear across participants, to ensure that there were no ordering related effects that emerge.

Analyses

Hypotheses were tested using moderated mediation. Preacher, Rucker, & Hayes (2007) outline five different forms of moderated mediation, based on what part of the simple mediation relationship is being moderated, and whether the moderating variable is already in the mediation model or not. Their fifth model involves including a moderator that impacts both the relationship between the independent variable and the mediator, and the relationship between the mediator and the dependent variable(s), which is the model I used here. I asserted that decision-making style would directly predict decision-making performance (hypothesis 1a), with this relationship being moderated by situational strength (hypothesis 1b), and mediated by time spent on task (hypothesis 2). Furthermore, I hypothesized that both my situational strength interventions (with respect to rationality and general) would moderate the relationship between decision-making style and time spent on task (hypothesis 3a). The stronger the condition an individual is in (regardless of whether the condition is general or rational), the more time the individual should spend on-task. However, I also hypothesized that type of situational strength would moderate the relationship between time spent on-task and performance. Specifically, spending additional time on-task would only predict higher performance when that time is invested rationally (hypothesis 3b).

Tofighi & Mackinnon (2015) discuss three different popular and accepted methods of conducting an analysis on indirect effects. First, the product of coefficients method, which is the oldest of the three methods, analytically derives the sampling distribution of the indirect effect (Tofighi & MacKinnon, 2015). Second, bootstrapping is a resampling method for hypothesis testing. In the bootstrapping method of hypothesis testing, the sample is conceptualized as a

proxy for the general population in question (Bollen & Stine, 1990; Lockwood & MacKinnon, 1998; MacKinnon et al., 2004; Preacher & Hayes, 2004; Shrout & Bolger, 2002). The data are therefore resampled multiple times to obtain multiple effect sizes in the relationships between the mediator, the predictor, and outcome variable. A confidence interval (CI) is then calculated for these effect sizes. The null hypothesis of no indirect effect is then rejected if 0 lies outside of this confidence interval. Finally, the Monte Carlo method uses computer simulations and integrates parameter estimates from the data to obtain effect sizes and confidence intervals (Tofighi & Mackinnon, 2015).

According to Preacher, Rucker, & Hayes (2007), product of coefficient strategies are only appropriate in the case of having a very large sample size. As this sample was not particularly large, I did not conduct indirect effects analysis with the product of coefficient strategy. Bootstrapping has become a popular and recommended method in past literature for assessing indirect effects (Bollen & Stine, 1990; Lockwood & MacKinnon, 1998; MacKinnon et al., 2004; Preacher & Hayes, 2004; Shrout & Bolger, 2002). However, some recent scholars have argued that bootstrapping is an inferior method of testing indirect effects when compared to the Monte Carlo Method (Tofighi & Mackinnon, 2015). Tofighi & Mackinnon (2015) recommend using the Monte Carlo method because it requires only a summary of the results of a given analysis, and it is more dependable when there is missing data. Furthermore, Monte Carlo Type I errors, Power, and CIs were better than those in bootstrapping within a few conditions. However, in general, bootstrapping is comparable in performance. Since running a Monte Carlo Simulation and running a resampling (bootstrapping) method produce equally acceptable results, I used the resampling method in my study. Furthermore, I chose to use bootstrapping because there is more

of a precedent for its use in past literature (Bollen & Stine, 1990; Lockwood & MacKinnon, 1998; MacKinnon et al., 2004; Preacher & Hayes, 2004; Shrout & Bolger, 2002).

According to Preacher, Rucker, & Hayes (2007), a conditional indirect effect (moderated mediation) only differs from an unconditional indirect effect (simple mediation) in that the path estimates are dependent upon the presence of another variable (the moderator). Therefore, it has been argued that bootstrapping is also appropriate as a method of assessing conditional indirect effects. As such, bootstrapping was used to estimate the effects in both of this model's moderated mediation pathways. Figure 1 depicts a full display of this model.

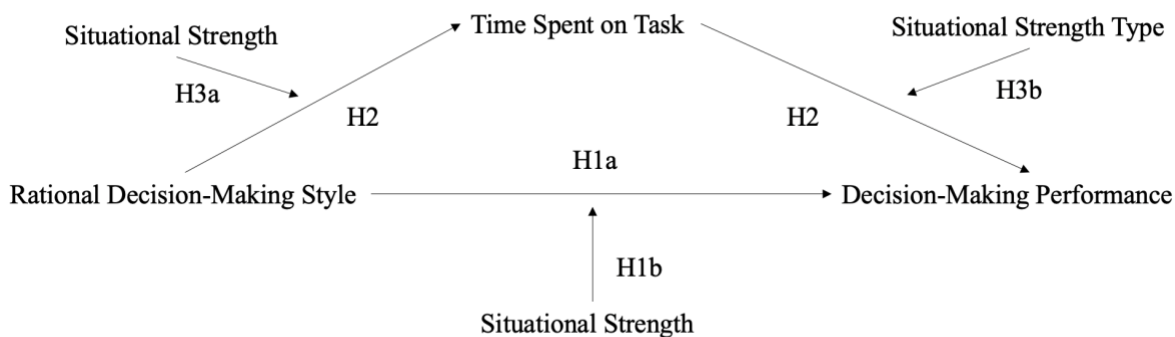


Figure 1. Proposed moderated mediation model.

I ran four different moderated mediation models using “processR” package in the data analysis software R. The “processR” package is able to perform analyses such as moderation, mediation, moderated mediation and moderated moderation in R. This package is based on the famous PROCESS macro for SPSS and SAS created by Andrew Hayes. Within these models I integrated each combination of my predictor variable (the rational decision-making style inventory), outcome variables (irrational escalation scale, and Monty Hall problem), moderators (rational situational strength, and normal situational strength), and my mediator variable (time

spent on task). The situational strength conditions were recoded as linear variables, such that in the rational situational strength linear variable the high strength condition was recoded as '3', the medium strength condition was recoded as '2', and the low strength condition was recoded as '1'. Furthermore, in the regular situational strength linear variable the high strength condition was recoded as '3', the medium strength condition was recoded as '2', and the low strength condition was recoded as '1'.

Results

Table 1: Descriptive Statistics and Correlations for Study Variables.

Variable	Mean	SD	α	1	2	3	4	5	6	7
1. Rational Decision-Making Style	2.86	.82	.86	—						
2. Situational Strength, Rational	NA	NA	NA	-.07	—					
3. Situational Strength, General	NA	NA	NA	.11	-1.0	—				
4. Monty Hall Problem	.22	.42	NA	.11**	.08**	-.01	—			
5. Irrational Escalation Scale	9.93	5.10	.52	-.38**	-.09**	-.03	-.10	—		
6. Time on Task, Monty Hall	28.38 (seconds)	29.19 (seconds)	NA	-.25	.06	.15	-.03	-.04	—	
7. Time on Task, IES	81.92 (seconds)	105.08 (seconds)	NA	.21**	.00	.06	.02	-.23**	.21**	—

Notes: * = $p < .05$, ** = $p < .01$, NA = Not Applicable

Table 2: Models Tested.

Model	Predictor	SS Type	Outcome
Model 1	RDMS	Rational	Monty Hall Problem
Model 2	RDMS	General	Monty Hall Problem
Model 3	RDMS	General	Irrational Escalation Scale
Model 4	RDMS	Rational	Irrational Escalation Scale

Hypothesis 1a (supported). Consistent with Hypothesis 1a, rational decision-making style was positively correlated with rational decision-making performance on the Monty Hall problem ($r = .11, p < .01$).

Hypothesis 1b (unsupported). In contrast to Hypothesis 1a, Hypothesis 1b was not found to be supported, as rational decision-making style actually negatively correlated with performance on the Irrational Escalation Scale ($r = -.38, p < .01$), which was the opposite of the expected effect.

Hypothesis 2a (supported). Consistent with hypothesis 2a, the relationship between rational decision-making style and decision-making performance of the Monty Hall problem was

found to be positively moderated by situational strength in both the rational condition ($B = .61, p < .001$) and the general condition ($B = .50, p < .001$).

Hypothesis 2b (supported). Conforming with hypothesis 2b, the relationship between rational decision-making style and decision-making performance of the Monty Hall problem was found to be positively moderated by situational strength in both the rational condition ($B=.48, p < .001$) and the general condition ($B = .51, p < .001$).

Hypothesis 3a (unsupported). Inconsistent with hypothesis 3a, time spent on task did not mediate the relationship between rational decision-making style and rational decision-making performance on the Monty Hall problem in either the rational ($B= .07, p = .28$) or the general situational strength conditions ($B= -.12, p = .052$).

Hypothesis 3b (unsupported). Inconsistent with hypothesis 3b, time spent on task did not mediate the relationship between rational decision-making style and rational decision-making performance on the Irrational Escalation Scale in either the rational ($B= .16, p = .49$) or the general situational strength conditions ($B= .06, p = .49$).

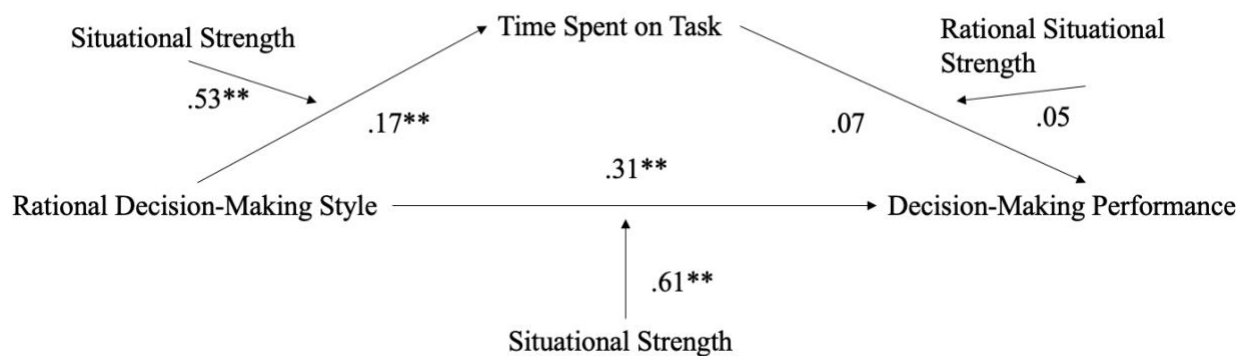
Hypothesis 4a (supported). Consistent with hypothesis 4a, both situational strength with respect to rationality ($B= .50, p < .001$) and general situational strength ($B= .48, p < .001$) moderated the relationship between rational decision-making style and time spent on task.

Hypothesis 4b (unsupported). Inconsistent with hypothesis 4b, situational strength with respect to rationality did not moderate the relationship between time spent on task and rational decision-making performance, because time spent on task was not found to significantly predict decision-making performance.

Table 3: Model 1- Predicting Monty Hall Performance Under Conditions of Rational Situational Strength.

Predictor	Outcome	B	p
RDMS	Monty Hall Performance	.31	<.001
Time on task	Monty Hall Performance	.07	.28
Rational Situational Strength	Monty Hall Performance	.63	<.001
RDMS * Rational Situational Strength	Monty Hall Performance	.61	<.001
RDMS	Time on Task	.17	<.05
Rational Situational Strength	Time on Task	-.40	<.001
RDMS * Rational Situational Strength	Time on Task	.53	<.001

Figure 1: Model 1.



The first model I tested examined RDMS as a predictor of Monty Hall problem performance, with time on task mediating this relationship. It also tested whether rational situational strength moderated both the relationship between RDMS and time on task, as well as the relationship between time on task and Monty Hall problem performance. It was found that the RDMS did negatively predict time on task ($B = -.17, p < .05$). However, RDMS did positively predict performance on the Monty Hall problem ($B = .31, p < .01$). Time on task did not predict Monty Hall problem performance ($B = .07, p = .28$). Rational situational strength did positively moderate the relationship between RDMS and time on task ($B = .53, p < .001$), as well as positively predicted Monty Hall problem performance ($B = .63, p < .001$). Furthermore, it was found that rational situational strength moderated the relationship between RDMS and Monty Hall performance ($B = .61, p < .001$).

Figure 2: Model 1 Moderation Effects.

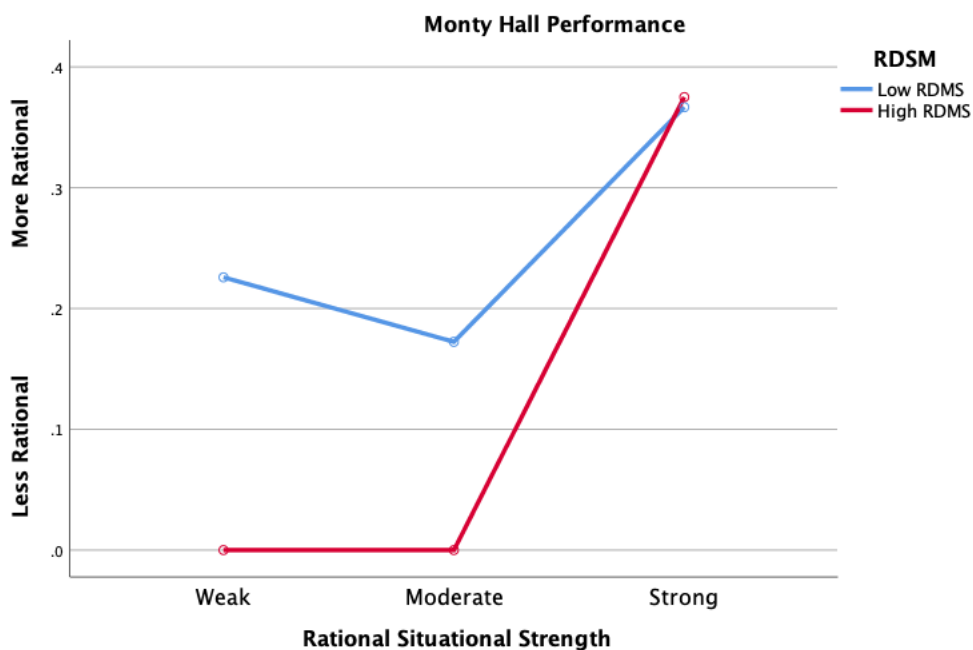
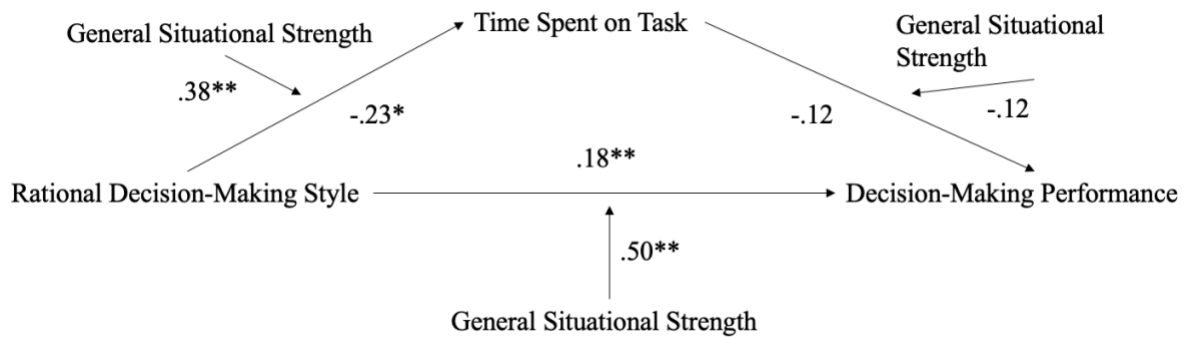


Table 4: Model 2- Predicting Monty Hall Performance Under Conditions of General Situational Strength.

Predictor	Outcome	B	p
RDMS	Monty Hall Performance	.18	<.05
Time on task	Monty Hall Performance	-.12	.052
General Situational Strength	Monty Hall Performance	.51	<.001
RDMS * General Situational Strength	Monty Hall Performance	.50	<.001
RDMS	Time on Task	-.23	<.05
General Situational Strength	Time on Task	-.20	<.05
RDMS * General Situational Strength	Time on Task	.38	<.001

Figure 3: Model 2.



The second model I tested examined RDMS as a predictor of Monty Hall problem performance, with time on task mediating this relationship. It also tested whether general situational strength moderated both the relationship between RDMS and time on task, as well as the relationship between time on task and Monty Hall problem performance. It was also found that the RDMS negatively predicted time on task ($B = -.23$, $p = .023$). However, RDMS did positively predict performance on the Monty Hall problem ($B = .18$, $p < .01$). Time on task did not predict Monty hall problem performance ($B = -.12$, $p = .052$). General situational strength did positively moderate relationship between RDMS and time on task ($B = .38$, $p < .001$), as well as positively predict Monty hall problem performance ($B = .51$, $p < .001$). Furthermore, it was found that general situational strength moderated the relationship between RDMS and Monty Hall performance ($B = .50$, $p < .001$).

Figure 4: Model 2 Moderation Effects.

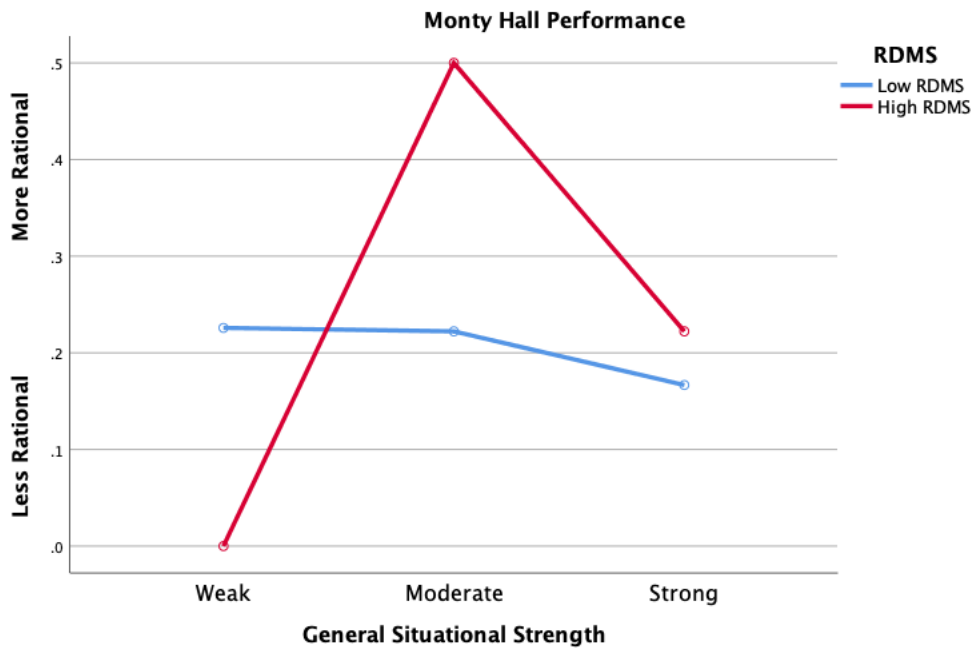
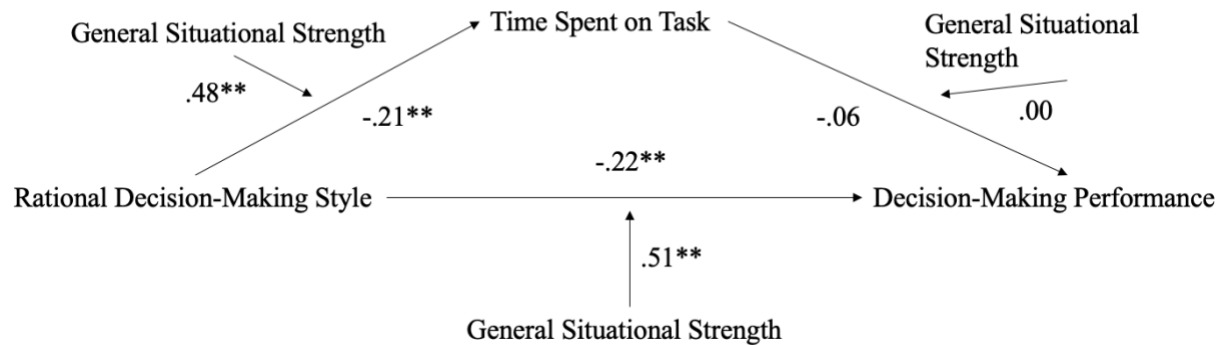


Table 5: Model 3- Predicting Irrational Escalation Scale Performance Under Conditions of General Situational Strength.

Predictor	Outcome	B	p
RDMS	IES Performance	-.22	<.05
Time on task	IES Performance	-.06	.49
General Situational Strength	IES Performance	-.46	<.001
RDMS * General Situational Strength	IES Performance	.51	<.001
RDMS	Time on Task	-.21	<.05
General Situational Strength	Time on Task	-.33	<.05
RDMS * General Situational Strength	Time on Task	.48	<.001

Figure 6: Model 3.



The third model I tested examined RDMS as a predictor of IES performance with time on task mediating this relationship. It also tested whether general situational strength moderated both the relationship between RDMS and time on task, as well as the relationship between time on task and IES performance. It was found that the RDMS negatively predicted both time on task ($B = -.21$, $p < .05$), and IES performance (recoded so higher scores indicate better performance) ($B = -.22$, $p < .01$). Time on task did not predict irrational escalation scale performance ($B = .06$, $p = .49$). General situational strength did positively moderate relationship between RDMS and time on task ($B = .48$, $p < .001$). However, general situational strength also negatively predicted performance on the irrational escalation scale performance ($B = -.46$, $p < .001$). Furthermore, it was found that general situational strength moderated the relationship between RDMS and IES performance ($B = .51$, $p < .001$).

Figure 7: Model 3 Moderation Effects.

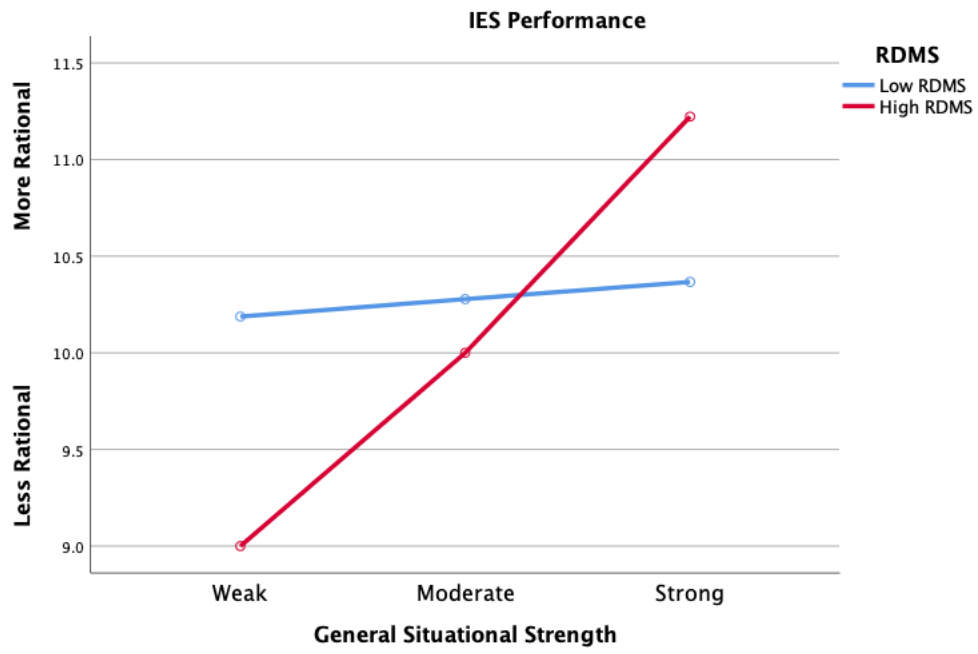
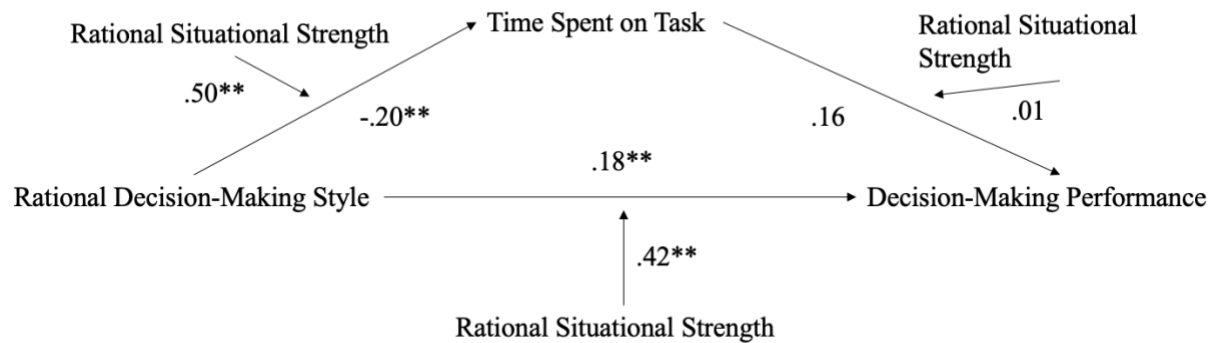


Table 6: Model 4: Predicting Irrational Escalation Scale Performance Under Conditions of Rational Situational Strength.

Predictor	Outcome	B	p
RDMS	IES Performance	.18	<.05
Time on task	IES Performance	.16	.07
Rational Situational Strength	IES Performance	-.38	<.001
RDMS * Rational Situational Strength	IES Performance	.42	<.001
RDMS	Time on Task	-.20	<.05
Rational Situational Strength	Time on Task	-.43	<.05
RDMS * Rational Situational Strength	Time on Task	.50	<.001

Figure 8: Model 4.



The fourth model I tested examined RDMS as a predictor of IES performance, with time on task mediating this relationship. It also tested whether rational situational strength moderated both the relationship between RDMS and time on task, as well as the relationship between time on task and IES performance. It was found that the RDMS also negatively predicted time on task ($B = -.20, p < .05$). However, RDMS did positively predict performance on the IES (recoded so higher scores indicate better performance) ($B = .18, p < .01$). Time on task did not predict irrational escalation scale performance ($B = .16, p = .49$). Rational situational strength did positively moderate the relationship between RDMS and time on task ($B = .50, p < .001$), as well as positively predict irrational escalation scale performance ($B = .38, p < .001$). Furthermore, it was found that rational situational strength moderated the relationship between RDMS and IES performance ($B = .48, p < .001$).

Figure 9: Model 4 Moderation Effects.

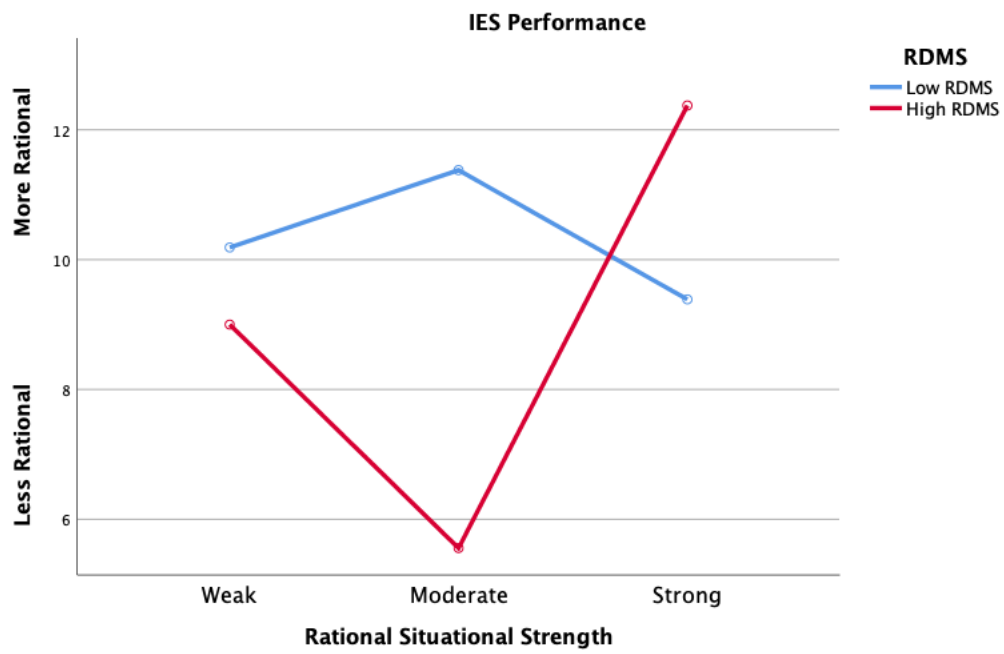


Table 7: Moderated Mediation Analysis for Each Model Tested.

Model	Indirect Effect Estimate	95% Bootstrap Confidence Interval
Model 1: [(RDMS -> Time on Task) + (RDMS* Situational Strength -> Time on Task) * Rational Situational Strength] * [Time on Task -> Monty Hall Performance]	.01	-.01, .03
Model 2 : [(RDMS -> Time on Task) + (RDMS* Situational Strength -> Time on Task) * General Situational Strength] * [Time on Task -> Monty Hall Performance]	.01	-.01, .04
Model 3 : [(RDMS -> Time on Task) + (RDMS* Situational Strength -> Time on Task) * General Situational Strength] * [Time on Task -> IES Performance]	-.04	-.02, .01
Model 4 : [(RDMS -> Time on Task) + (RDMS* Situational Strength -> Time on Task) * Rational Situational Strength] * [Time on Task -> IES Performance]	-.01	-.04, .02

Exploratory Analyses

There were also non-hypothesized significant findings that emerged in multiple of the models tested. These findings suggest the superiority of rational situational strength over general situational strength in decision-making performance, as well as the merit of situational strength in general in decision-making performance. Within all conditions, situational strength was shown to impact decision-making performance (model 1: $B = .63$, $p < .001$; model 2: $B = .51$, $p < .001$; model 3: $B = -.46$, $p < .001$; model 4: $B = .38$, $p < .001$). More specifically, it was shown that rational situational strength predicted increased decision-making performance (model 1: $B = .63$, $p < .001$; model 2: $B = .51$, $p < .001$). General situational strength also positively predicted increased decision-making performance, when decision-making performance was measured using the Monty Hall Problem (model 4: $B = .38$, $p < .001$). However, when decision-making performance was measured using the IES (which is rescaled, because higher values would indicate less rationality), general situational strength predicted decreased decision-making performance (model 3: $B = -.46$, $p < .001$).

Discussion

Future Directions

The goal of this study was to determine if individual differences in decision-making styles are impacted by situational strength. More specifically, I hypothesized that under strong situational conditions that indicate rational decision-making is valued, individuals will tend to make more rational decisions regardless of their preferred decision-making style. While not all hypotheses were supported, general findings from this research indicate that under strong situational conditions in which rational decision-making is valued, individuals will tend to make more rational decisions. This finding indicates that it may be possible to design an environment in which rationality is communicated through the clarity, consistency, constraints, and consequences of a situation. It also potentially indicates that it is possible that an environment that emphasizes rationality may have the potential to lead individuals within that environment to make decisions rationally, regardless of their preferred decision-making style. Such a “culture of rationality” may be very valuable to organizations, as rational decision-making style has been strongly linked to performance (Alaybek et al., under review; Philips et al., 2017). Future research should explore how to develop and implement a culture of rationality in order to increase the performance of workers within organizations.

While the findings of my study indicate situational strength with respect to rationality may be a useful method of increasing rationality within the workplace, they also potentially indicate that it may be necessary for situational strength to emphasize rationality in order to be effective. Specifically, general situational strength was found to decrease performance on our

workplace-contextualized measure of decision-making performance (The Irrational Escalation Scale). However, general situational strength was found to increase performance on our non-contextualized measure of decision-making performance (The Monty Hall problem). While not considered in the scope of this paper, different types of situational strength could impact different forms of decision-making performance in more nuanced ways based on the contextual content of the situation a decision is nested within. Future research should explore how types of situational strength and types of situational content interact in a way that produces differences in rational decision-making performance.

This study also produced findings that merit further exploration into the nuances of the relationship between rational decision-making style and decision-making task performance. In only three out of four models was the relationship between rational decision-making style positively related to rational decision-making performance. Under the conditions of general situational strength, and workplace-contextualized decision-making (The Irrational Escalation Scale), explicit rational decision-making was negatively related to rational decision-making performance. Furthermore, when examining the relationship between rational decision-making style and workplace contextualized decision-making performance (The Irrational Escalation Scale). Based on these findings, it could be that the merits of rational decision-making style only truly emerge under certain conditions. Perhaps the positive impact of rational decision-making style on rational decision-making performance, only exists within certain contexts, or under certain contexts and degrees of situational strength. While outside the scope of this current study, future researchers should consider exploring further the nuances in decision-making outcomes based their interactions with decisions based within certain differentiated contexts (workplace versus non-workplace, etc.).

Furthermore, while one of the secondary goals of this study was to identify a potential mediator within the relationship between rational decision-making style and rational decision-making performance, my hypothesis regarding mediation was found to be non-significant in all models that were tested. I hypothesized that time on task would mediate the relationship between rational decision-making style, and rational decision-making performance, such that rational decision-making style would positively predict time spent on the decision-making task, and time spent on the decision-making task, would positively predict rational decision-making performance on the decision-making task. However, not only was my mediation hypothesis not supported, findings indicate that there were no relationships between time spent on decision-making task, and decision-making task performance in any of the models that were tested within this study. Interestingly, there was a significant relationship identified in every model between rational decision-making style and the amount of time spent on a decision-making task. However, in all models this relationship was found to be negative, such that those higher in rational decision-making style spent generally less time on a decision-making task. The implications of these findings may be quite positive, as they indicate that more time spent on a task is not necessary in order to gain the benefits from rational decision-making style. This potentially indicates that those possessing a rational decision-making style require no more time to solve problems than those with a rational decision-making style, but have better results none the less. While developing the theoretical rationale behind these interesting non-hypothesized findings is beyond the scope of the current discussion, future research should explore how time spent on task generally relates to decision-making performance in those with a rational decision-making style. Furthermore, future researchers should also explore other potential mediators in the relationship between rational decision-making style and decision-making performance.

Another secondary goal of this paper was to identify a potential moderator in the relationship between rational decision-making style and decision-making performance. As expected, it was found that situational strength positively moderated the relationship between rational decision-making style and decision-making performance in all four models. This is an interesting finding, because it indicates that those higher in rational decision-making style potentially generally perform better within strong situations, regardless of whether those strong situations emphasize general strength or strength with respect to rationality. This could mean that individuals with rational decision-making styles are more primed to activate their rational decision-making abilities when they are in strong situations, as the consequences and constraints of the situation lead these individuals to be more vigilant.

While some of my hypotheses were fully supported and other were completely unsupported, the overarching theme of this paper can truly be represented through my non-hypothesized exploratory findings. As mentioned at the end of the results, it was found that rational situational strength led to increased decision-making performance in both models that it was tested, and general situational strength led to increased decision-making performance in one model and decreased decision-making performance in another. These findings indicate that situational strength is of at least some importance in the decision-making performance for individuals. Furthermore, these findings would indicate that by emphasizing rationality, situations may encourage those involved to think in a way that will lead to better rational decision-making performance. Future research should seek to not only replicate these findings, but also further explore the relationship between situational strength and decision-making.

Practical Implications

In the introduction of the paper I suggest that situational strength has the potential to become a potent debiasing strategy, and the findings of this study support this proposition. While the full moderated mediation models tested in this study were not found to be significant, situational strength was found to moderate the relationship between rational decision-making style and decision-making performance. More specifically, situational strength with respect to rationality was found to positively moderate the relationship between rational decision-making style and decision-making performance. This indicates that there is potential for situational strength to be used as a debiasing tool if it emphasizes rational behavior. Organizations could potentially increase decision-making performance by strongly, clearly, and consistently emphasizing an environment of rationality. Past literature has shown us that situational strength in organizations is largely communicated through coworkers, supervisors, and company policies (Alyabek et al., 2017). By consistently and clearly instructing supervisors and workers to approach problems in a rational manner, and having consequences for behaving otherwise, organizations may create a strong situation with emphasis on rationality. Furthermore, organizations could also consistently create organizational policies that promote rational thinking. By combining these multiple strategies of strongly communicating a need of rational thinking, organizations could create a strong situation with emphasis on rationality, potentially leading to higher levels of decision-making performance. As mentioned earlier, over time this continual strong emphasis on rationality could develop a “culture of rationality”, hypothetically aiding all employees within an organization to perform more rationally. Future research should

explore the implementation of strong situations with respect to rationality in actual organizations, and how over time a “culture of rationality” may be cultivated.

Limitations

While many of the hypothesized effects in this study were found to be significant, and the findings of the study provide interesting information to the current literature on how rationality can be impacted by contextual factors, this study does suffer from a number of limitations.

First, the current data were collected from a sample of undergraduate students. While this is not entirely problematic for the generalization of the findings in this study, as much of these methods deal specifically with general human decision-making processes, our findings do indicate that there could be intrinsic differences between decision-making performance in a workplace context versus non-contextualized decision-making performance. Therefore, the findings identified in this study would be much stronger if they were replicated in an actual workplace setting, or even at a minimum with a sample of full-time employees.

Second, the current data were collected online. While not entirely problematic, different effects could be observed in a lab setting than have been found here. Situational strength vignettes have been used reliably in past literature as a method of manipulating different situations with emphasis on strength (Meyer et al., 2014). However, the theoretical rationale behind situational strength implies at least some communication from other individuals, such as consistency and clarity, which could make the current findings emerge differently if participants were actually interacting with real life individuals.

Conclusion

In closing, this study merited five interesting findings that potentially contribute to current literature on both rational decision-making and situational strength. First, as shown in previous literature, I partially replicate findings that rational decision-making style is related to rational decision-making performance. Second, I find that this relationship between rational decision-making style and decision-making performance is moderated by situational strength, such that those with rational decision-making styles perform better when in strong situations. Third, time spent on decision-making task does not appear to play a critical role in the relationship between rational decision-making style is related to rational decision-making performance. Fourth, situational strength does appear to play a critical role in rational decision-making. Fifth, it would appear that under conditions of the situational strength that specifically emphasize rationality, decision-making performance improves. Future research should explore the nuances in the nature of the relationships explored here, develop further theory to explain decision-making styles, and expand these findings to broader organizational contexts.

References

- Alaybek, B., Dalal, R. S., Sheng, Z., Morris, A. G., Tomassetti, A. J., & Holland, S. J. (2017). Situational strength cues from social sources at work: Relative importance and mediated effects. *Frontiers in psychology*, 8, 1512.
- Alaybek, B., Wang, Y., Boemerman, L., Dubrow, S., & Dalal, R. (2017) Effects of Rationality and Intuition on Job Performance and Attitudes: A Meta-Analysis. Poster Presented at 33rd annual meeting of the Society of Industrial-Organizational Psychology, Chicago, IL.
- Arkes, H. R. (1991). Costs and benefits of judgment errors: Implications for debiasing. *Psychological Bulletin*, 110(3), 486.
- Bruine de Bruin, W., Parker, A. M., & Fischhoff, B. (2007). Individual differences in adult decision-making competence. *Journal of personality and social psychology*, 92(5), 938.
- Charness, G., & Gneezy, U. (2009). Incentives to exercise. *Econometrica*, 77(3), 909-931.
- Chapman, G. B., Li, M., Colby, H., & Yoon, H. (2010). Opting in vs opting out of influenza vaccination. *Jama*, 304(1), 43-44.
- Crossley, C. D., & Highhouse, S. (2005). Relation of job search and choice process with subsequent satisfaction. *Journal of Economic Psychology*, 26(2), 255-268.

- Costa, P. T., & McCrae, R. R. (1985). The NEO personality inventory. *Journal of Career Assessment*, 3(2), 122-136.
- Dalal, R. S., & Bolunmez, B. (2016). Evidence-based strategies to improve workplace decisions: Small steps, big effects. *SHRM-SIOP Science of HR Series*, 1-22.
- Downs, J. S., Loewenstein, G., & Wisdom, J. (2009). Strategies for promoting healthier food choices. *American Economic Review*, 99(2), 159-64.
- Frederick, S. (2005). Cognitive reflection and decision making. *Journal of Economic perspectives*, 19(4), 25-42.
- Funder, D. C. (2006). Towards a resolution of the personality triad: Persons, situations, and behaviors. *Journal of Research in Personality*, 40(1), 21-34.
- Gerber, A. S., & Rogers, T. (2009). Descriptive social norms and motivation to vote: Everybody's voting and so should you. *The Journal of Politics*, 71(1), 178-191.
- Gneezy, U., Meier, S., & Rey-Biel, P. (2011). When and why incentives (don't) work to modify behavior. *Journal of Economic Perspectives*, 25(4), 191-210.
- Hattrup, K., & Jackson, S. (1996). Learning about individual differences by taking situations seriously. *Individual differences and behavior in organizations*, 507-547.

- Jackson, A. T., Howes, S. S., Kausel, E. E., Young, M. E., & Loftis, M. E. (2018). The Reciprocal Relationships Between Escalation, Anger, and Confidence in Investment Decisions Over Time. *Frontiers in psychology, 9*, 1136.
- John, L. K., Loewenstein, G., Troxel, A. B., Norton, L., Fassbender, J. E., & Volpp, K. G. (2011). Financial incentives for extended weight loss: a randomized, controlled trial. *Journal of general internal medicine, 26*(6), 621-626.
- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The core self-evaluations scale: Development of a measure. *Personnel psychology, 56*(2), 303-331.
- Levin, I. P., & Gaeth, G. J. (1988). How consumers are affected by the framing of attribute information before and after consuming the product. *Journal of consumer research, 15*(3), 374-378.
- Meyer, R. D., & Dalal, R. S. (2009). Situational strength as a means of conceptualizing context. *Industrial and Organizational Psychology, 2*(1), 99-102.
- Meyer, R. D., Dalal, R. S., & Bonaccio, S. (2009). A meta-analytic investigation into the moderating effects of situational strength on the conscientiousness–performance relationship. *Journal of Organizational Behavior, 30*(8), 1077-1102.

- Meyer, R. D., Dalal, R. S., & Hermida, R. (2010). A review and synthesis of situational strength in the organizational sciences. *Journal of Management*, 36(1), 121-140.
- Meyer, R. D., Dalal, R. S., José, I. J., Hermida, R., Chen, T. R., Vega, R. P., ... & Khare, V. P. (2014). Measuring job-related situational strength and assessing its interactive effects with personality on voluntary work behavior. *Journal of Management*, 40(4), 1010-1041.
- Milkman, K. L., Chugh, D., & Bazerman, M. H. (2009). How can decision making be improved? *Perspectives on psychological science*, 4(4), 379-383.
- Mischel, W. (1977). The interaction of person and situation. *Personality at the crossroads: Current issues in interactional psychology*, 333, 352.
- Morewedge, C. K., Yoon, H., Scopelliti, I., Symborski, C. W., Korris, J. H., & Kassam, K. S. (2015). Debiasing decisions: Improved decision making with a single training intervention. *Policy Insights from the Behavioral and Brain Sciences*, 2(1), 129-140.
- Parker, D. F., & DeCotiis, T. A. (1983). Organizational determinants of job stress. *Organizational behavior and human performance*, 32(2), 160-177.
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42(1), 185-227.

- Phillips, W. J., Fletcher, J. M., Marks, A. D., & Hine, D. W. (2016). Thinking styles and decision making: A meta-analysis. *Psychological Bulletin*, *142*(3), 260.
- Roch, S. G., Woehr, D. J., Mishra, V., & Kieszczynska, U. (2012). Rater training revisited: An updated meta-analytic review of frame-of-reference training. *Journal of Occupational and Organizational Psychology*, *85*(2), 370-395.
- Raidl, M. H., & Lubart, T. I. (2001). An empirical study of intuition and creativity. *Imagination, Cognition and Personality*, *20*(3), 217-230.
- Selvin, S. (1975). Monty Hall Problem. *American Statistician*, *29*(3), 134-134.
- Singh, R., & Greenhaus, J. H. (2004). The relation between career decision-making strategies and person–job fit: A study of job changers. *Journal of Vocational Behavior*, *64*(1), 198-221.
- Silvia, P. J., Winterstein, B. P., Willse, J. T., Barona, C. M., Cram, J. T., Hess, K. I., ... & Richard, C. A. (2008). Assessing creativity with divergent thinking tasks: Exploring the reliability and validity of new subjective scoring methods. *Psychology of Aesthetics, Creativity, and the Arts*, *2*(2), 68.
- Scott, S. G., & Bruce, R. A. (1995). Decision-making style: The development and assessment of a new measure. *Educational and Psychological Measurement*, *55*(5), 818-831.

- Schwartz, J., Mochon, D., Wyper, L., Maroba, J., Patel, D., & Ariely, D. (2014). Healthier by precommitment. *Psychological Science, 25*(2), 538-546.
- Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: Improving decisions about health, wealth, and happiness*. Penguin.
- Thunholm, P. (2008). Decision-making styles and physiological correlates of negative stress: Is there a relation?. *Scandinavian Journal of Psychology, 49*(3), 213-219.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science, 185*(4157), 1124-1131.
- Uhlmann, E. L., & Cohen, G. L. (2007). "I think it, therefore it's true": Effects of self-perceived objectivity on hiring discrimination. *Organizational Behavior and Human Decision Processes, 104*(2), 207-223.
- Volpp, K. G., Troxel, A. B., Pauly, M. V., Glick, H. A., Puig, A., Asch, D. A., ... & Corbett, E. (2009). A randomized, controlled trial of financial incentives for smoking cessation. *New England Journal of Medicine, 360*(7), 699-709.
- Wood, N. L., & Highhouse, S. (2014). Do self-reported decision styles relate with others' impressions of decision quality? *Personality and Individual Differences, 70*, 224-228.

Yu, R. (2016). Stress potentiates decision biases: A stress induced deliberation-to-intuition (SIDI) model. *Neurobiology of stress*, 3, 83-95.

Zhang, D. C., & Highhouse, S. (2018). Judgment and decision making in the workplace. *The SAGE handbook of industrial, work & organizational psychology*, 611-633.

Appendix A: Situational Strength Vignettes

General Situational Strength Vignettes

Imagine you are in a workplace scenario. Your department at work has a number of current problematic scenarios that need to be solved. Your supervisor has asked you to resolve these problems (which will be presented to you on the next screen).

Weak:

- Consequences: This is a low-pressure assignment because your impact will only be temporary.
- Clarity: Your supervisor has not told you how much thought you should put into this task.
- Constraints: Your company's procedures have very few regulations on how to complete this assignment
- Consistency: Your coworkers disagree on how you should approach this task.

Moderate:

- Consequences: This is a moderate-intensity assignment because your impact may or may not be permanent.
- Clarity: Your supervisor told you to put "some effort" into this task, but you're not sure how to interpret this statement.
- Constraints: Your company's established procedures require a moderate amount of attention to detail to complete this task.

- Consistency: Some of your coworkers say you should approach this task carefully, but others have differing opinions.

Strong:

- Consequences: This is a high-intensity assignment because your impact will likely be permanent.
- Clarity: Your supervisor told you to put a lot of effort into this task.
- Constraints: Your company's hiring procedures require an extreme level of attention to detail to complete.
- Consistency: Your coworkers all agree you should approach this task carefully.

Strength with respect to Rationality Vignettes

Imagine you are in a workplace scenario. Your department at work has a number of current problematic scenarios that need to be solved. Your supervisor has asked you to resolve these problems (which will be presented to you on the next screen).

Moderate WRT Rationality:

- Consequences: This is a moderate-objectivity assignment because your impact may only be temporary.
- Clarity: Your supervisor told you to put "some thought" into this task, but you're not sure how to interpret this statement.
- Constraints: Your company's procedures require a moderate amount of logical analysis to complete this task.
- Consistency: Some of your coworkers say you should approach this task scientifically, but others have differing opinions.

Strong WRT Rationality:

- Consequences: This is a high-objectivity assignment because the outcome will likely be permanent.
- Clarity: Your supervisor told you to put a lot of thought into this task.
- Constraints: Your company's procedures require an extreme level of logical analysis to complete this task.
- Consistency: Your coworkers all agree you should approach this task scientifically.

Appendix B: Irrational Escalation Scale Vignettes

Decision 1

You are the Vice President of Operations for a mid-sized high-tech manufacturing firm. You have 10 million dollars and 3 years to complete a research project that will develop a radar-scrambling device that would render a ship undetectable by conventional radar, in effect, a radar-blank ship. Prior to the beginning of the project, Steve, the project engineer, informs you that he does not think that all 10 million dollars will be needed to successfully complete the project, but he does think that he will need at least 5 million dollars to complete the project.

Between 5 million dollars and 10 million dollars, how much money would you like to invest in the project? \$_____

Decision 2

Two years after the project started, Steve retired from the company. Jackie is the new project engineer. You meet with Jackie to get an update on the project. Jackie informs you that Steve used the money you initially invested to purchase inexpensive materials that are of poor quality. As a result, all of the computer components in the plane keep short-circuiting. Jackie says that she is certain she can remedy the mistake, but that she will need an additional 3 million to 6 million dollars in funding. The decision you face now is to either abandon the project or authorize more funding to continue this radar-scrambling project.

Authorize more funding _____

Abandon the project _____

Between 3 million dollars and 6 million dollars, how much money would you like to authorize to continue the radar-scrambling plane? \$_____

Decision 3

Three months after you provided the additional funding for Jackie to replace the faulty parts that Steve had purchase, you ask Jackie for an update on the project. You are pleased to learn that the

computer components are now working properly. Jackie also informs you that she believes the project will be finished on schedule. However, she informs you that the radar-scrambling device also scrambles other electronic devices, such as the pilot's communication system. She informs you that the problem can be fixed with a new software system for the radar-scrambler, but that she needs an additional 2 million to 5 million funds to purchase the new software system. The decision you face now is to either abandon the project or authorize more funding to continue this radar-scrambling project.

Authorize more funding _____

Abandon the project _____

Between 2 million dollars and 5 million dollars, how much money would you like to authorize to continue the radar-scrambling plane? \$ _____

Decision 4

After another 3 months have passed, you visit the engineering department to view the radar-scrambling plane. You are pleased to learn that the additional funding you granted solved the problem with the radar-scrambler affecting other devices. Jackie informs you that the plane is ready for a test flight. She asks if you would like to ride aboard the plane during the test flight. You are excited to see how well the plane is working and decide to ride aboard the plane. During the test flight everything works perfectly. None of the radar systems are detecting the plane. 30 min after take-off, the pilot informs you the test is over and he is landing the plane. Once on the ground, you ask the pilot why he landed the plane so shortly after the flight began. He informs you that the additional weight of the radar-scrambling device caused the plane to burn the fuel faster than expected. The pilot suggests that the fuel tanks be upgraded to allow for longer flights but that it would cost an additional 4 million to 7 million dollars in funding. The decision you face now is to either abandon the project or authorize more funding to continue this radar-scrambling project.

Authorize more funding _____

Abandon the project _____

Between 4 million dollars and 7 million dollars, how much money would you like to authorize to continue the radar-scrambling plane? \$_____

Decision 5

Three months later, you discover that another firm has already begun marketing a similar product that takes up less space and is much easier to operate than your design. Jackie informs you that the project is 90% complete. She informs you that she is pleased with all of the progress that has been made despite the issues that have arisen along the way. Jackie informs you that although the upgraded fuel tanks allow the plane to fly much further than before, the fuel tanks cost more than expected. She informs you that she will need an additional 1 million to 4 million dollars in funding to pay for the remainder of the project. The decision you face now is to either abandon the project or authorize more funding to continue this radar-scrambling project.

Authorize more funding _____

Abandon the project _____

Between 1 million dollars and 4 million dollars, how much money would you like to authorize to continue the radar-scrambling plane? \$_____