

Leader Development or Leader Distress? Examining the Interactive Effects of Leadership Self-
Efficacy and Situational Strength on Perceptions of Stress, Performance, and Physiological
Responses

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Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University in
partial fulfillment of the requirements for the degree of

Master of Science

In

Psychology

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ABSTRACT (Academic)

Stress is a concept that can be studied using a variety of theoretical approaches, with a focus on the individual's perceptions, the external stressor, or the physiological reactions of stress responding. However these approaches are often used independently, when they can be used complementarily to understand the nuanced relationship between the individual and the situation when appraising stressors as challenges or threats. The current study examined the relationship between individual differences in perceptions, situational strength (both as a categorical and a continuous predictor), and physiological reactions in a leadership task. Situational strength and leadership self-efficacy were found to interact, such that those high in LSE reported more appraisals of challenge as situational strength increased.

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ABSTRACT (Public)

Stress is a widely known concept that has been studied in various ways (individual perceptions, situational characteristics, physiology, etc.). However these approaches are often used independently, when they can be used together to more fully understand the process of how individuals appraise stressors. The current study examined the relationship between the previously mentioned approaches within a leadership task. Situational strength and leadership self-efficacy (LSE), or one's perceived capabilities to perform leadership duties, were found to interact, such that those high in LSE reported more appraisals of challenge as situational strength increased.

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Introduction

Overview

In 2016 companies around the world spent nearly \$31 billion on various leadership programs (Deloitte Consulting, L.L.P., 2016). Leader development is defined as expanding the propensity of the members of an organization to successfully and efficiently handle leadership roles and duties (Day, Fleenor, Atwater, Sturm, & McKee, 2014; McCauley, 2000). Within the domain of leader development, challenging experiences are ones that stretch a leader's ability to work outside of their comfort zone, develop new skills and abilities, and provide important opportunities to learn (Van Velsor, McCauley, & Ruderman 2010). However, appraisals of stress from participating in leader development experiences vary among individuals. Courtright, Colbert, and Choi (2014) found that some leaders with a high degree of developmental challenge experienced increased motivation and more transformational leadership behaviors, while other leaders experienced heightened emotional exhaustion and more frequent laissez-faire leadership behaviors. Leader stress can have a detrimental effect on organizational, team, and individual performance (Courtright et al., 2014; Pearsall, Ellis, & Stein, 2009). The finding that 88% of leaders identified their job as their largest source of stress according to a study conducted by Campbell, Innis, Bates, Marin, and Meddings (2007), emphasizes the need to understand how and why leader development efforts can be perceived as stressful and how to elicit the positive stress response of increased motivation, effort, and performance.

The concept of leader development can be expanded to include not only adult leaders within organizations, but also young adults. Komives and Dugan (2012) note that youth are being engaged in leader development activities at early ages and that the skills and knowledge they acquire through these experiences is develops over time. Specifically, college-age individuals are exposed to many opportunities to develop leadership; from curriculum based programs and courses to experiential learning in student organizations. As individuals are gaining skills, knowledge, and experience to help prepare them for current and future leadership responsibilities, it is useful to consider the appraisal of stress associated with their leader development opportunities.

Just how exactly do we study leader stress within organizational settings? There are three primary approaches to studying stress within organizational settings: The person-centric (socio-cognitive model), the external stressor focused approach (challenge-hindrance model), and the physiological approach. The person-centric approach refers to the sociocognitive model of stress in which the individual perception of the stressful situation can lead to differential outcomes depending on the individual's appraisal of the stressor. Appraisal is the characterizing feature of the sociocognitive model of stress (Lazarus & Folkman, 1984; Lazarus & Folkman, 1987). Organizational researchers sought to create a more systematic and functional way to predict stress responses, since repeatedly measuring worker's appraisals was deemed inefficient (Brief & George, 1995). To accomplish this, scholars developed the external stressor focused approach, which focused on factors beyond individual perceptions. This approach uses a dichotomous set of the most likely responses to these stressors, known as the challenge-hindrance model of stress (LePine, Podsakoff, & LePine, 2005). Lastly, physiological measurement has also been a key component in stress research allowing for the assessment of cardiovascular response patterns that

accompany stress appraisals (Blascovich & Tomaka, 1996). The current study seeks to integrate the sociocognitive and challenge-hindrance models of stress to investigate the effects of situational strength on perceptions of stress and physiological responses to stress in a leadership task. The three approaches to studying stress are discussed in more detail below.

Approaches to Studying Stress

The sociocognitive model of stress focuses only on individual appraisals of stressors, and is comprised of three stages (Lazarus & Folkman, 1987). Primary appraisal is the first stage in which an individual assesses the relevance of the stressor to their goals or well-being. There are four types of stressors. Benign stressors have a minimal to no effect on the individual. Threat stressors are those that have not occurred yet but present the opportunity for harm to the individual. Harm stressors are those that have already occurred and brought harm or hindrance to the individual's goals or well-being. Finally, challenge stressors are those that present the opportunity for growth or learning, but require action on the part of the individual to adequately meet the demands of the situation. The next stage is the secondary appraisal in which an individual assesses their ability to cope with the stressor, their available coping resources, and their desired coping strategy (Lazarus & Folkman, 1987). In general, coping strategies in the sociocognitive model can be categorized as problem-focused or emotion-focused coping. Problem-focused coping is characterized by action on the part of an individual to change the stressor or stressful situation. Emotion-focused coping involves changing an individual's appraisals and cognitions associated with a stressor to re-appraise it or psychologically distance oneself from the stressor. The third stage involves the individual's implementation of the chosen coping strategy.

Where the sociocognitive model focuses on the individual appraisals of stressors, the challenge-hindrance model focuses on external stressors. The assumption is that most individuals will react the same way to the external stressor (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). The challenge-hindrance model categorizes a host of external, work-related, stressors as either “challenge” or “hindrance.” Challenge stressors are those that provide the opportunity for learning, growth, or mastery and elicit coping responses of increased motivation and effort and ultimately result in increased performance (LePine et al., 2005). Example of challenge stressors in this framework include time-pressure or increased work load. Hindrance stressors, on the other hand, are those that present an impediment to goals or progress such that no amount of effort on the individual’s part will result in overcoming the stressor. This is likely to result in increased psychological withdrawal and emotional exhaustion. Examples of hindrance stressors are role clarity and organizational bureaucracy. Thus, the challenge-hindrance model assumes, *a priori*, that certain stressors will be experienced as either challenges or hindrances. The model’s functional purpose is to create a systematic, shorthand framework for organizations to utilize.

The two models should not be viewed as competing, but rather as complimentary. The primary appraisal categories of challenge and threat stressors are extremely similar to the distinction between challenge and hindrance stressors. In addition, the coping behaviors elicited in the challenge-hindrance model are at their core, problem-focused and emotion-focused coping respectively (Lazarus & Folkman, 1984). While the challenge-hindrance model provides a systematic view of external stressors and their most likely relationship with performance, the sociocognitive model provides the additional insight into the mechanisms behind the categorization of the stressor and the coping strategies employed. Therefore, integrating the two

models allows for a more complete understanding of the stressor-performance relationship and perceived stress, by gaining insight into the individual perceptions that affect challenge-hindrance responses.

Alongside the psychological methods of categorizing stress responses, physiological measurement has been used to categorize response patterns as well. Specifically, the biopsychosocial model (BPS) coined by Blascovich and Tomaka (1996), examines cardiovascular response patterns of participants in a state of challenge or threat. The BPS model categorizes challenge and threat states similarly to the sociocognitive model's secondary appraisal stage in that a "calculation" is made between demands and resources. If resources outweigh demands or are deemed reasonably close to the level of demands, a state of challenge ensues. However, if demands outweigh resources by a reasonable amount, a state of threat ensues.

The BPS model utilizes three main indicators of cardiovascular reactivity to differentiate between challenge and threat states: Myocardial contractility, cardiac output (CO), and total peripheral resistance (TPR). These measures are used to assess the output of the cardiovascular system, as well as the resistance encountered by the blood flow due to vasodilatation and constriction. Challenge states are characterized by an increase in contractility and CO, as well as a decrease in TPR. Threat states, on the other hand, are indexed by a modest increase in contractility, no change or a decrease in CO, and no change or an increase in TPR.

Integration of approaches.

These approaches to studying stress are often used individually, but should rather be seen as complementary models. Blascovich and Tomaka (1996) advocate for an interdisciplinary, multilevel approach to the study of psychological and physiological variables; stating that

relationships cannot be satisfactorily understood from a unidimensional standpoint of psychological or physiological variables. The sociocognitive model provides the groundwork for the challenge hindrance model by differentiating between challenge and threat states. The challenge-hindrance model takes these appraisals and categorizes the most likely responses to various external stressors, wherein the subsets of responses (increased engagement, psychological withdrawal, negative affect, etc.) are grounded in problem and emotion-focused coping from the sociocognitive model. The physiological approach of the BPS model utilizes the secondary appraisal aspect of the sociocognitive model to assess resources and demands when categorizing response states as challenge or threat.

The sociocognitive and challenge-hindrance models were integrated by Webster, Beehr, and Love (2011) to test the assumption that certain stressors would be experienced as either challenges or hindrances (LePine et al., 2005). The authors extended the challenge-hindrance occupational stress model by examining the role of appraisal in the stressor-outcome process. The authors found that challenge/hindrance stressors may be perceived as a challenge or a hindrance to varying degrees and even simultaneously and primary appraisal partially mediated the stressor-outcome relationship.

The models were also integrated by Edwards, Franco-Watkins, Cullen, Howell, and Acuff (2014) to examine the effects of perceived stress as well as the external stressors on performance by varying the strength of the external stressor. This study served to show that a given stressor (e.g., role ambiguity or time pressure) may be perceived as a challenge or hindrance depending on characteristics of the individual experiencing the stressor or severity of the stressor. These two, integrative studies provided useful insight into the complex relationship

between the characteristics of the individual and the characteristics of the situation, showing that stress related outcomes are related to the interaction between the individual and the situation.

Situational Strength

Situational strength refers to the strength of relevant cues for desired or appropriate behavior in a given situation (Mischel, 1977). For example, at a stop sign, the cues for the desired behavior are very salient and consistently construed across individuals resulting in little behavioral variability in this situation. The stop sign would be an example of a strong situation, one that possesses salient, consistently construed cues for the desired behaviors. In contrast, a weak situation is one that contains vague cues for target behaviors and results in increased behavioral variability across individuals (Mischel, 1977; Snyder & Ickes, 1985). An example of a weak situation would be attending a football game. The cues for desired behavior in this situation are vague; therefore, the construal of the situation and what behaviors are appropriate is more susceptible to individual differences. There are a variety of acceptable behaviors at a football game, an extraverted, loud person may dress up and scream and cheer, while a shy, introverted individual may sit quietly and enjoy the game.

In any given situation, the desired behavioral response is considered the primary outcome. In reference to the stop sign example, stopping is the primary outcome (Meyer, Dalal, & Hermida, 2010). However, situations also have the propensity to create unintended, secondary outcomes. Secondary outcomes are responses to the situation that result from implicit motives held by the individual (Meyer et al., 2010; Wiita, 2012). If an individual is late for work, they should still stop at the stop sign but may begin to feel anxiety, frustration, or anger for perceiving the stop sign is making them even later. Two primary questions arise out of the notion of situational strength: how exactly does one measure the strength of a given situation, and how do

individual differences affect perceptions of these situations and the subsequent outcomes? To address the first question, a theoretical taxonomy of situational strength (specifically in a work context) was created by Meyer and colleagues (2010). The authors define four facets of situations that influence the strength: Clarity, consistency, constraints, and consequences.

Clarity refers to the cues a situation presents for appropriate behavior and how to be successful in the task at hand. Consistency addresses the match/mismatch between these cues over time and across sources. Constraints represent limits to autonomy or handling tasks in a preferred order. Consequences refer to the positive or negative implications of a situation for an individual or others.

The second question regarding individual differences was addressed in a study conducted by Marshall and Brown (2006). The authors demonstrated that because individual differences function in a threshold manner, people high on a relevant individual difference are more reactive to moderate levels of situational strength than are those who are low on the individual difference, whereas in high levels of situational strength, people low on the individual difference will appear to be more reactive than people high on the same individual difference. Applying the work of Marshall and Brown (2006) to leader development, what individual differences can impact perception of leadership development opportunities as challenge stress or threat?

Appraising one's ability to cope with a challenging situation is a common thread between all of the previously described models of stress. One's self-efficacy is a proximal variable in the process of coping that can largely dictate the subsequent stress response (Bandura, 1997).

Coupled with the notion of an attraction to challenging goals, leadership self-efficacy should specifically influence one's willingness to tackle challenging leadership goals and view them as opportunities to learn and grow. Leadership self-efficacy should influence individual's appraisal

of resources and their view on a more challenging task as one that presents a conquerable demand, in line with the sociocognitive view of challenge stress.

The Current Study

The current study sought to examine the differential stress responses to varying levels of situational strength created by manipulating constraints and consequences in a leadership task. Leadership self-efficacy (LSE) was examined as the variable interacting with situational strength. Similar to the work of Marshall and Brown (2006), it was hypothesized that individuals higher in LSE would be more sensitive to situational cues indicating challenge stress and those lower in LSE would be more sensitive to hindrance stress cues, resulting in subsequent effects on performance, perceived stress, and physiological response patterns.

Literature Review

The term “stress” originally gained its footing as a topic of study by physicists; specifically in terms of man-made structures and their ability to carry large loads and to resist outside forces (wind, rain, and other natural events) that would seemingly weaken them (Selye, 1956). The “load” was defined as the acting weight on a structure, such as a bridge, while “stress” referred to the area that the load affected, and “strain” referred to the negative effects on the structural integrity brought on by the load and the stress. Despite its origins in physics, this notion of stress carries over into the more contemporary models of stress. The notion of stress as an external pressure on some system (physiological, psychological) survives to this day. Stress can come from various sources in one’s life, work, school, home, etc. From potential layoffs, to upcoming exams, to parenting duties, stress can permeate many facets of life and can have detrimental effects.

Stress can also impact various areas of an individual's life from their psychological well-being to physical health. Stress can bring a host of negative psychological effects including emotional strain, psychological withdrawal, and negative affect (Courtright et al., 2014; Lazarus & Folkman, 1987). Physiologically, stress can be very detrimental to an individual's well-being. Chronic stress can lead to increased morbidity and mortality due to the strain it can put on the body (Akinola, 2010). Stress can increase heart rate and blood pressure, leading to decreased cardiovascular health with chronic exposure. With chronic exposure to stress, a deviation from homeostasis, the body must expend energy and resources to return to normal. With chronic stress, the repeated deviation from homeostasis results in a weakened ability for the body to return to normal functioning which can decrease the effectiveness of bodily protections like the immune system (McEwen, 1998).

Approaches to Studying Stress

Early approaches to stress research categorized stressors in a unidimensional manner. All stressors were viewed as having negative effects on various outcomes (health, performance, and well-being). However, this approach was plagued with inconsistent findings and stressor-outcome relationships. The inconsistency arose from the notion, that occasionally stress would have positive outcomes, a direct contradiction to the unidimensional approach. An important development in early stress research was brought about by researcher Hans Selye. Selye portrayed stress from a homeostatic viewpoint such that any stress response represented a deviation from normal that an individual would attempt to reconcile (Selye, 1964). His approach focused on stressors as external determinants of the physiological stress response.

Selye introduced the concepts of distress and eustress to examine stress responses and subsequent outcomes. Distress is a state in which there is a discrepancy between the external

demands placed on an individual and the individual's available resources to handle the demands. Distress is associated with negative effects on an individual's psychological and physiological well-being such as negative affect, psychological withdrawal, or heightened heart-rate (Akinola, 2010; Courtright et al., 2014; Selye, 1956). Eustress, on the other hand, is "good stress", or the levels of stress where performance benefits are seen. In contrast to distress, eustress arises when an individual perceives their resources exceed the external demands of the stressor. Individuals can perceive any stressor as eustress or distress or even a combination of both depending on their perception of their available resources and the external demands.

An attempt to explain the underlying mechanisms of stress appraisals relationships was brought forth by the sociocognitive approach to stress (Lazarus & Folkman, 1984). This approach places emphasis on the perception and appraisal of stressful situations, incorporating individual perceptions into the equation as explanatory variables. This expansion provided insight into how external stressors are processed by the individual and how this cognitive construal impacts the subsequent stress response.

Sociocognitive Approach

The sociocognitive model of stress conceptualizes stress with a focus on the individual appraisal of the external stressor demands placed upon them as well as their available resources to cope with the stressor. There are still external, objective stressors, but individuals perceive these stressors (e.g., increased time pressure to complete job tasks), appraise stressors based on whether the individual has the necessary resources to conquer it (leading to emotional, physical, behavioral, and psychological reactions and strains), and employ coping strategies to deal with the stressor.

The Transactional Stress Theory (Lazarus & Folkman, 1984), a systematic version of the sociocognitive approach, views stress as an exchange between the person and their environment. When an external stressor is presented an individual will go through three key steps to assess and appraise the stressor, differing from traditional conceptualizations of stress that automatically categorized stressors as wholly negative. The first step in this process is called the primary appraisal. During the primary appraisal, an individual makes judgment on the goal relevancy of an external stressor. Does the stressor have an impact for the individual physically, psychologically, or socially and is it a potential detriment to the goals of the individual? If the stressor is appraised as relevant then the next step is the secondary appraisal. During this stage the individual determines whether the stressor is benign (no real threat to goals or well-being in any capacity), a threat (potential harm that has not yet happened), harmful (the negative effects have already occurred), or challenge (opportunity for learning or mastery). After appraising the type of stressor the individual will appraise their personal resources available for coping with the stressor. Coping is typically defined as thoughts or behaviors one employs to manage both the internal demands and external demands associated with a given stressor (Folkman & Moskowitz, 2004).

There are multiple coping strategies one can utilize to deal with any given stressor, but one of the earlier categorizations distinguishes two categories of coping behaviors, problem-focused and emotion-focused coping (Folkman, Lazurs, Dunkel-Schetter, DeLongis, & Gruen, 1986). Problem-focused coping is aimed at taking direct action towards a stressor such as devoting extra time to a difficult work task to complete it or creating a plan to handle increasing job demands. Emotion-focused coping employs strategies to curb the negative psychological effects of stress, such as engaging in other tasks to distract from the stressor at hand or

psychologically withdrawing from the situation to avoid thinking about the stressor. This dichotomous coping nomenclature was found to be a useful starting point for understanding coping as most sub-strategies of coping fit under the larger umbrella of problem or emotion-focused coping. After the initial coping process an individual can reappraise the situation and adjust their appraisals and subsequent coping strategies as necessary.

The sociocognitive model of stress provides valuable insight into the study of stress by expanding on the traditional conceptualizations and examining individual perception and appraisal and coping strategies employed to handle stressors. This approach to stress research expanded on the traditional viewpoint focusing on external stressors and the negative psychological and physiological responses to stress by adding individual appraisals and coping strategies as the underlying mechanisms.

Challenge-Hindrance Model

Roughly a decade after the conception of the sociocognitive approach, organizational researchers thought the greater concern in studying stress should be the external context instead of the individual perceptions and construal. While Lazarus has provided invaluable insight into the intraindividual intricacies of the stress process, organizational researchers felt it impractical to constantly measure and understand the individual appraisals of each employee and instead sought to find stressors in the workplace that *most* employees would appraise as challenge or threat, arguing that work environments provide a consistent construal for most individuals (Brief & George, 1995).

This approach resulted in the challenge-hindrance model of stress in the workplace (Cavanaugh et al., 2000). In this model external stressors are categorized as either “challenge” or “hindrance” with each categorization subsuming a set of coping responses and stressor—

performance outcomes. A challenge stressor is an external stressor that presents an individual with opportunity for growth, mastery, or learning. Challenge stressors in this model include stressors such as time pressure or high responsibility. Challenge stressors are those that elicit increased engagement, effort, and motivation and are seen as obstacles that one can overcome in order to learn and grow. They have been shown to have positive relationships with performance via increased engagement and motivation (LePine et al., 2005). Hindrance stressors are external stressors that present a detriment to an individual's learning, growth, or well-being and include things like role ambiguity and organizational red-tape (LePine et al., 2005). Hindrance stressors elicit increased psychological withdrawal, negative affect, and disengagement. Hindrance stressors are viewed as obstacles that no amount of effort the individual can expend on overcoming will be worthwhile or bring positive benefits. Hindrance stressors have been shown to have a negative relationship with performance via decreased motivation, psychological withdrawal, and negative affect (Cavanaugh et al., 2000; Courtright et al., 2014; LePine et al., 2005).

The challenge-hindrance model was a noted improvement in stress research, illuminating the differential effects of environmental stressors by a dichotomous categorization. Research following this conceptualization has found consistent relationships between stressors and work-related outcomes. However, it has been noted that the relationships are still not as consistent as the theory would suggest (LePine et al., 2005). Because the challenge-hindrance model categorizes stressors solely on their external characteristics and explores relationships between objective stressors and work-related outcomes, it excludes the moderating effect of individual differences on stress appraisals and appraisals. The relationship between stress appraisals and related outcomes, the "missing link" in the challenge-hindrance model, is emphasized by the

sociocognitive model of stress that focuses on the individual perception, appraisal, and coping strategies that are employed in response to stressors.

The perception-appraisal-coping link provides insight into the explanatory gap in the challenge-hindrance model. It is for this reason that the two models of stress should be viewed as complementary and not competing. The challenge-hindrance model provides a dichotomous categorization of external stressors and their *most likely* relationship to performance and the mediating mechanisms (engagement/withdrawal) as well as the aspects of external stressors that lead to their categorization (opportunity for growth and learning/insurmountable stressor with no gains) as challenge or hindrance. The sociocognitive model provides an individualized look at the appraisal process and coping strategies employed but lacked a systematic stressor—performance relationship that is added by the challenge-hindrance model.

Physiological Response Patterns

Aside from the psychological approaches to studying the stress response, attempts have been made to categorize physiological response patterns as challenge or threat. Specifically, Blascovich and Tomaka (1996) examined cardiovascular response patterns of participants in a state of challenge or threat. In the biopsychosocial model (BPS) the author's operationalization of challenge and threat stems from the sociocognitive approach with a stage of primary and secondary appraisal. In the BPS model, primary appraisal assesses the goal relevance and motivation to perform in a situation as well as what evaluation of performance will take place. Secondary appraisal assesses the demands of the situation in terms of its uncertainty, danger, and object performance demands as well as one's resources available to handle the stressor. The BPS model treats this secondary appraisal process as a calculated ratio of demands versus

resources. If demands outweigh resources, a state of threat ensues; however, if resources outweigh demands or are reasonably close to the level of demands, a state of challenge ensues.

In the BPS model, challenge and threat states are accompanied by cardiovascular response patterns. The model utilizes three main parameters of cardiovascular measures to index these states: Myocardial contractility, cardiac output (CO), and total peripheral resistance (TPR). These cardiovascular parameters assess the overall output of blood from the heart and the resistance incurred by this outgoing blood due to the constriction of blood vessels. The mechanisms behind this are thought to be the sympathetic-adrenomedullary (SAM) system and the pituitary-adrenocortical (PAC) system. In a state of challenge the SAM increases cardiac performance while releasing epinephrine, which dilates the blood vessels and decreases peripheral resistance to blood flow. In a state of threat, the SAM system activates alongside the PAC system, with the PAC system inhibiting the release of epinephrine, blunting the increase in cardiac performance and releasing norepinephrine which constricts the blood vessels, increasing peripheral resistance. In summary, a challenge state is characterized by an increase in contractility and cardiac output with a decrease in TPR and threat is characterized by a modest increase in contractility, no change or even a decrease in cardiac output, and no change or a slight increase in TPR.

While receiving less attention than the other approaches to stress in the I/O literature, the physiological response patterns offer a unique look in to stress reactivity. The physiological response patterns can serve as another index of challenge and threat appraisals, and can lend insight into the physiological and health outcomes of stress.

Integration of Theories

Viewing the models of stress as complementary instead of competing allows for the exploration of when environmental stressors are most influential on performance outcomes and when individual appraisal is most important. Edwards et al. (2014) integrated the challenge-hindrance model of stress and the sociocognitive model to explore the relationships between stress and performance via perceived stress, effort, and negative affect.

Utilizing an experimental manipulation of challenge and hindrance stress they created conditions that manipulated performance pressure. In the challenge condition participants gained more money for correct responses than lost money for incorrect responses thus, manipulating the perception that increased effort would result in personal gain. In the hindrance condition participants lost more money for incorrect answers than they gained for correct answers. This condition manipulated the perception that increasing effort was futile and harm to personal gain was imminent, or a hindrance stressor. Using this manipulation, they found that participants in the challenge stress condition felt less stress than those in the hindrance condition, but performance was almost identical between conditions.

The authors described their payoff manipulation as a "moderate stressor" so for their second study they included the strong, salient stressor of time pressure (considered a challenge stressor by the challenge-hindrance model) to both conditions (challenge and hindrance) to examine relationships of perceived stress and environmental stressor on performance outcomes. Adding the strong environmental stressor, Edwards et al. (2014) found that performance degraded equally across both the challenge and hindrance conditions, but perceived stress was still higher in the hindrance condition. The authors concluded that individual appraisals of stress (the sociocognitive model) were more closely related to performance outcomes in what they call

the "moderate stress situation" (the performance payoff matrix) and environmental stressors were more important in their "strong stressor" condition (addition of time pressure to both conditions).

This study served to elucidate the differential relationships between individual appraisals of stress, environmental stressors and their respective relationships with performance. Another key point this study brought to light in the stress-performance relationship is situational strength. They examined what they called a moderate stress situation and found individual differences in stress appraisals to account for more variance in the stress-performance relationship, but in their strong stress situation the environmental stressor was the driving force.

This study brought to light two important points, exploring the boundary conditions of the two complementary models of stress and providing evidence that the "situational strength" influenced which model would be best predicted the stressor—performance relationship. The latter contribution sparks the question of how do we determine the strength or weakness of a given situation?

Situational Strength

Situational strength is most closely associated with the work of Walter Mischel and the Situational Strength Hypothesis. The Situational Strength Hypothesis (SSH) is centered on the notion that situations possess behavioral cues of varying strength. The stronger the situation, the less behavioral variability you will observe because the behavioral cues are so salient and consistently construed by individuals. But in weaker situations, where cues are not so apparent, you will observe greater behavioral variability, specifically more expression of individual personality differences.

One classic example of the SSH is the traffic light. At a red light, it is quite obvious what behavior is expected (stopping), it is not a cue that is misconstrued by anyone and so, regardless

of individual differences, people will (for the most part) stop at a red light resulting in decreased behavioral variability because the situational cue is so strong. However, at a yellow light the situation is not so clear. Do you stop as the light turns yellow? Slow down? Speed through? The situational cues for behavior at a yellow light aren't so clear, relative to the red light; therefore, individual differences may play a bigger role in determining behavior. The timid, cautious driver may stop as the light turns yellow while the aggressive, dominant driver may speed on through. This increase in behavioral variability is a result of the situational cues being weaker, which in turn allows individual differences in perception to affect behavioral outcomes. Examining this behavioral variability in moderate situations requires an understanding of the other influential variables, specifically individual differences relevant to the situation at hand.

Situations present certain cues intended to produce a target behavior, known as the primary outcome. Thinking back to the red light metaphor, stopping is the primary outcome or target behavior. However situations also create secondary, often unintended, outcomes. These are psychological, physiological, or emotional outcomes brought on by individual differences in the perception of a situation that are not intended (Wiita, 2012). For example, if an individual stops at a red light the primary outcome has been reached, but if they are late for work they may experience a sense of anger or even anxiety along with the target behavior, and that is the secondary outcome. For example, in the study conducted by Courtright et al. (2014), leaders were asked about the level of developmental challenge they faced. Developmental challenge was described as challenging job situations that support learning and leader development (DeRue & Wellman, 2009). Here the primary outcome would be positive leadership behavior such as increased engagement or transformational leadership behaviors, ultimately resulting in increased performance. However, based on the self-efficacy of the leader, these developmentally

challenging situations created additional outcomes, in terms of stress reactions (psychological withdrawal, increased engagement). These reactions can be viewed as secondary outcomes brought on by developmental challenge.

A hypothetical example of this concept in leadership context would be if a student leader within a student organization was given greater oversight and responsibility over upcoming events. The added responsibility and workload could create developmentally challenging scenarios for the leader (similar to the work of Courtright et al., 2014). The primary outcome of this change in responsibility would be that the student performs well and completes their duties effectively. However, while a confident leader may see this as a positive, learning experience, a less self-efficacious leader may experience increased anxiety or stress associated with the responsibility, resulting in maladaptive coping strategies such as distancing or venting (Lazarus & Folkman, 1984), adverse psychological stress, or poorer performance outcomes, all of which would be secondary outcomes associated with the initial change in responsibility. These secondary outcomes and the role of individual differences in those perceptions are a key component in understanding the process of how situations can influence an individual's stress appraisals in various situations.

Experimental Manipulation of Situational Strength

The notion that weaker situations allow for more behavioral variability was empirically tested by Marshall and Brown (2006). The researchers explored the relationship between situational strength and personality trait expression. Specifically the situation was designed to convey negative feedback on a written assignment and the personality trait was trait aggressiveness. They created a weak situation, a moderate situation, and a strong situation of negative feedback on a written assignment such that the weak situation provided feedback that

the essay was good, the moderate condition feedback stated that the essay seemed like there was little effort put into it, and the strong condition feedback stated that this was the worst essay the grader had read. After participants were given the feedback aggression was measured by a hypothetical scenario at the end of the experiment where participants were under the impression they were going head-to-head with another participant on a reaction time test where the loser would receive an auditory burst at a decibel level of the winner's choosing. The decibel level that participants chose to administer was the behavioral measure of aggression.

What the researchers found was that in the weak condition where it would be difficult to construe that any aggressive response was needed, there was no difference in the decibel level chosen between those low in trait aggressiveness and high in trait aggressiveness. In the strong condition the highest decibel level of any of the conditions was chosen by those with low and high trait aggressiveness but there was no difference between the groups. Both groups chose to behave more aggressively regardless of their individual standing on the trait. However, in the moderate condition, those high in trait aggressiveness chose a significantly higher decibel level than those with low trait aggressiveness. The individual differences were the "driving force" behind the behavioral outcome. The situation provided cues that could be construed as insulting or aggressiveness but the cues weren't strong enough that all participants would construe it as aggressive; therefore, the participants' individual differences on trait aggressiveness contributed more to their reactions.

The main focus of situational strength hypothesis is that strong situations generate consistent construal across individuals and this, in turn, restricts the expression of individual differences creating less behavioral variability with the inverse for weak situations. Therefore, this research opens up a new approach to stress appraisals. Strong situations should generate

consistent perceptions as there is little room for individual differences to be expressed as demonstrated by Marshall and Brown, as well as Edwards and colleagues. However, weaker situations should allow for the expression of individual differences.

Integration of the Situational Strength Hypothesis with the complementary work of the challenge-hindrance and sociocognitive frameworks allows for a potentially fuller view of the stress—performance relationship. Specifically, framing situations in terms of their situational strength allows for the examination of when individual differences can result in differential reactions to the same situation.

Situational Strength Taxonomy

Situational strength, while an intuitive concept, lacked a systematic approach to “measuring” what makes a given situation strong or weak. Recently, Meyer et al. (2010) developed a theoretical taxonomy of four situational “facets” that can describe the strength of a given situation. The first is clarity, which is defined as the availability and clarity of cues related to expected behavior as well as how available information is on how to be successful at a target behavior. Clear instructions and well communicated work procedures are things that can contribute to the clarity of a given situation. The second, consistency is defined as how consistent the cues related to expected behaviors are across multiple time points and multiple sources, or inversely the degree to which they conflict with one another. Examples of consistency are company policies that don’t conflict with one another or receiving the same procedural instructions from multiple organizational leaders. The third facet is constraints, defined as limits imposed, by forces outside his or her control, on an individual’s autonomy or decision making freedom. Examples of situational constraints are behavioral monitoring systems or strict supervision on tasks that would limit the employee’s freedom on which tasks to pursue

in which order. The final facet is consequences, defined as the degree that an individual's actions have important positive or negative consequences for any relevant person. Consequences can be influenced by both positive/negative reward/punishment systems and potentially dangerous outcomes associated with a job (Meyer et al., 2010).

Although recently developed, this taxonomy provides a systematic view of situations and their varying degrees of strength. While there has yet to be research examining how the facets interact with one another (additive or multiplicative effects on outcomes) one major addition has been made. This was the development of the Situational Strength at Work Scale (Meyer et al., 2014). The purpose of this scale was to create a measure of the facets of situational strength. In doing so, Meyer et al. (2014) correlated the four facets with work related items that were previously described in the challenge-hindrance framework. Clarity demonstrated a significant positive correlation with production responsibilities and a significant negative correlation with role ambiguity. Consistency was significantly positively correlated with feedback and negatively correlated with role ambiguity as well as role conflict. Constraints were negatively correlated with autonomy, and consequences were positively correlated with task significance. Building from the work of Edwards et al. (2004), the theoretical taxonomy of situational strength allows for a more systematic viewpoint to examine the strength of a stressful situation.

While the situational facets can be thought of in terms of external stressors designed to elicit the primary outcome (time pressure, role ambiguity) much like the challenge-hindrance model, the individual differences in perception and framing (the sociocognitive model) can lead to secondary outcomes of stress appraisals. So it may matter which situational facets are manipulated in order to achieve the primary outcome. Strict negative consequences and high constraints on a task may elicit high task performance but may be viewed as management's

expression of control over employees or a perception of a suffocating and stifling work environment leading to a more negative perception and psychological health. However, if high clarity were used to elicit high performance it may be less likely to be framed with a negative valence leading to decreased stress appraisals. When utilizing situational strength to examine stress appraisals and outcomes in a leadership context, what individual differences can impact leaders to differentially frame leader development experiences?

Leader Development and Stress

Leadership is not strictly an adult phenomenon, leadership can be exhibited across the life span and development can take place at various stages. Student leadership has become more prevalent and professionalized, including seminars, coursework, major degrees, formal development opportunities, and student organization leadership. These opportunities can provide students with novel situations and experiences that can contribute to their development as a leader. As they are put into various scenarios throughout their collegiate career, the diversity of the environment and situations can help create the challenge necessary for students to make meaning and integrate their identities allowing for the occurrence of leader development (Komives & Dugan, 2012).

Courtright et al. (2014) examined the effects of developmental challenge (a measure of the degree an individual experiences various leadership scenarios and duties) on leadership behavior, mediated by either increased engagement or emotional exhaustions. They posited that some leaders would perceive high developmental challenge as a challenge stressor resulting in increased engagement and motivation leading to positive transformational leadership behavior and that some would perceive it as hindrance resulting in emotional exhaustion and withdrawal resulting in increased laissez-faire leadership behavior. The difference in perception, they

argued, would be moderated by leadership self-efficacy (LSE), or a leader's perceived ability to successfully perform the duties and activities of a leadership role. The researchers chose LSE by drawing on the challenge-hindrance model notion that the differentiating factor between challenge and hindrance stress is a perception of one's ability to successfully cope. Courtright et al. (2014) found that LSE strengthened the indirect relationship between developmental challenge and laissez-faire leadership behavior through emotional exhaustion for those lower in LSE.

The relationship between leader development and challenge stressors is a valuable and important one. When developing leaders it is ideal that they perceive the opportunity for mastery and growth, experience heightened motivation and engagement and ultimately perform better, and following the previously outlined research, self-efficacy is an influential factor in that process.

Self-Efficacy as an Implicit Motive to Learn

Self-efficacy is a concept coined by Albert Bandura (1977) that encompasses an individual's perceived capabilities to execute and accomplish designated goals and tasks. Bandura introduced self-efficacy as a component of human motivation above and beyond simply outcome expectations. Self-efficacy has been shown to affect academic motivation, such that more efficacious students work harder, more persistently, and have less negative affective reaction when tackling difficult academic problems (Bandura, 1997). There is also evidence that students who perceive themselves to be more academically capable (more efficacious) are more willing to embrace challenging goals than those lower in self-efficacy (Zimmerman, Bandura, & Martinez-Pons, 1992).

Self-efficacy can be assessed in a general sense or in a domain specific fashion about a specific task or situation. The current study will assess leadership self-efficacy in order to obtain a domain specific measure of perceived self-efficacy. An a priori judgment of one's own capabilities to tackle leadership tasks should shed light on their perceived resources available to tackle challenging leadership tasks. This pertains to Lazarus and Folkman's (1984) model of stress in the secondary appraisal aspect. Self-efficacy should contribute to evaluations of one's personal resources when faced with a stressor.

Current Study

The current study sought to integrate the sociocognitive, challenge-hindrances, and biopsychosocial models of stress to examine the interactive effects of leadership self-efficacy and situational strength on appraisals of stress, performance, and physiological responses. Similar to the work of Marshall and Brown (2006), the key interactions were expected in the moderate strength condition. The study tested the following hypotheses:

1. Situational Strength and Leadership Self-Efficacy (LSE) will interact, such that the relationship between LSE and *primary appraisal* will differ across the experimental conditions
 - a. Specifically participants with high LSE, compared to those with low LSE, will report the highest levels of *challenge appraisal* in the moderate condition as compared to the weak and strong condition
 - b. Participants with low LSE, compared to those with high LSE, will report the highest levels of *threat appraisal* in the moderate condition as compared to the weak and strong condition

2. Situational Strength and Leadership Self-Efficacy (LSE) will interact, such that the relationship between LSE and task performance will differ across the experimental conditions. Specifically participants with high LSE, compared to those with low LSE, will show the highest levels of performance in the moderate condition as compared to the weak and strong condition
3. Situational Strength and Leadership Self-Efficacy (LSE) will interact, such that the relationship between LSE and cardiovascular reactivity will differ across the experimental conditions.
 - a. Specifically, participants with high LSE, compared to those with low LSE, will exhibit the pattern of reactivity associated with *challenge stress* (a challenge pattern is characterized by an increase in contractility and cardiac output with a decrease in TPR) in the moderate condition, while there will be no differences between high and low LSE in the weak or strong conditions
 - b. Participants with low LSE, compared to those with high LSE, will exhibit the pattern of reactivity indicative of *threat stress* (a threat pattern is characterized by a modest increase in contractility, no change or even a decrease in cardiac output, and no change or a slight increase in TPR), in the moderate condition, while there will be no differences in the weak or strong conditions.

Method

Participants

Approval from the Virginia Tech Institutional Review Board was obtained for the current study. There were a total of 30 (15 Males, 15 Females) participants who completed the survey measures and experimental task, all of whom had physiological measures recorded. All

participants were undergraduate students who participated in the study for extra credit in an introductory psychology course. Participants needed to be at least 18 years of age to participate. Participant ages ranged from 18-22. Exclusionary criteria included those who had smoked tobacco within the last year as well as those who ingested caffeine within 6 hours of completing the study.

A power analysis was conducted using GPower3 (Faul, Erdfelder, Lang, & Buchner, 2007) to determine the appropriate sample size for the study. To detect a two-way interaction effect in a regression analysis with a power of .80 with an effect size of .38, derived from previous research (Edwards et al., 2014), 67 total participants were needed.

Procedure

Participants were individually brought into the lab to participate in the study. Once they arrived in the lab they completed the informed consent form. Then, seven spot electrodes were attached to the participant after cleaning the placement site in order to collect cardiovascular data and participants were seated at the computer. A 3-lead configuration was used to collect ECG data and a 4-lead configuration was used to collect ICG data (a detailed explanation of the configuration can be found below). Participants were instructed to remain seated and as still as was comfortable throughout the experiment as to not impact physiological recording. Electrodes were attached to participants by a gender matched experimenter. The equipment was calibrated and a five-minute baseline measurement was collected as participants watched a relaxing video of various fish swimming in a tank. They then completed the LSE scale (Ng, Ang, & Chan, 2008). Participants completed this measure as well as the subsequent psychological measures (Situational strength, primary appraisal, and a demographics questionnaire) on the computer while seated at in an attempt to reduce movement. Following the measures of LSE, participants

were given the task instruction packet and were given 5 minutes to read the instruction packet. Following this period, situational strength, and primary appraisal were assessed, then the leadership assessment task preparation phase began. The task instructed participants that they would assume the role of a recruitment manager in a hypothetical organization, and consisted of preparing a video-recorded training speech to help their subordinates in an upcoming selection task, instructing them on the procedure and criteria involved in screening applicants for a new position at a fictitious company. Participants were then given the instruction set corresponding to their respective situational strength condition and were given five minutes to read over the instruction set and ask any questions they may have. Once the five minutes expired, participants then completed the modified PASA (Gaab, Rohleder, Nater, & Ehlert, 2005) and the assessment of situational appraisal (Meyer et al., 2010). Next the preparation phase began, which allotted participants 15 minutes to prepare their speech and participants were given the option to take notes on the computer in a document that could be used later during the speech delivery. Participants were explicitly instructed not to directly copy anything from the instruction set to their note document. At the completion of the speech preparation phase, participants were directed to face the video camera positioned in the room directly adjacent to their computer screen to record the training video used to instruct their subordinates. Participants remained seated throughout the speech delivery. During the speech delivery only participant's notes were displayed on the computer screen. Once they finished delivering their instructions, participants completed demographics questionnaires assessing age, sex, ethnicity, class standing, and whether they held a leadership position. Height and weight for each participant was also collected at this time to be used later in the physiological analysis procedure. They were then debriefed on the true nature of the study and remaining questions were addressed at this time. The spot electrodes

were removed following this debriefing period. Participants were thanked for their participation and time and the experiment concluded. A timeline of the study procedure and accompanying lengths of time can be found in Figure 1.

Task

Similar to instructions used in previous research (Hoyt, Johnson, Murphy, & Skinnell, 2010; Towler, 2003), participants were told that they would play the role of the hypothetical Recruitment Manager of the Amidex Corporation, and they were to brief their ostensible “followers” on how to complete a resume selection/screening of potential employees. Participants were given a packet of information including task instructions, a description of Amidex’s background, values and goals, and background of their leadership role. The instruction packet (Appendix A) included information on the criteria Amidex is seeking in its applicants including degree requirements and desired experiences. Participants were given 15 minutes after reviewing the instructions to prepare their training speech, before delivering their instructions. This task allows for the expression of the following leadership behaviors: understanding and communicating the organization vision in their speech, instructing and guiding followers through the selection procedure with the overarching goals of the organization in mind, and situating their follower’s task in a larger context in line with the tenets of transformational leadership (Bass, 1990).

Independent Variables

Situational strength. Situational strength was manipulated through the consequences and constraints facets of situational strength (Meyer et al., 2010) to create a strong, moderate, and weak situation. Consequences and constraints were used due to the prevalence of manipulations of these facets in the literature. Constraints are often operationally manipulated in the form of

time pressure or behavioral monitoring (Edwards et al., 2014; Pearsall, Ellis & Stein, 2009). Consequences typically are manipulated in terms of pressure to perform, monetary rewards, or social judgment (Kirschbaum, Clemens, Pirke, & Hellhammer, 1993; Wiita, 2012). All manipulations were inserted into the instructional packet (Appendix A). The manipulation instructions were inserted twice into the document, once near the beginning and once at the very end of the instructional packet to increase the likelihood participants would notice and remember the instructions. The manipulation instructions can be found in Appendix B.

Strong situational strength. Constraints were manipulated in the strong situation through perceived time pressure. Participants were told that previous participants were given 20 minutes to prepare their speech (described as an adequate amount of time); however, they would only be given 15 minutes for the purpose of the study. Consequences were manipulated by the instructional packet informing participants that a highly validated scoring algorithm would provide them with an immediate assessment following their performance, and that this score was indicative of their overall leadership potential.

Moderate situational strength. Constraints were manipulated in the moderate condition through perceived time pressure. Participants were told that participants completing this task typically are given 15 minutes to prepare their speech (described as an adequate amount of time); therefore, they were also given 15 minutes for the purpose of the study. Consequences were manipulated by the instructional packet informing participants that two graduate student coders would score their performance during the instructional speech based primarily on public speaking skills and effective delivery of instruction.

Weak situational strength. In the weak situation, constraints were manipulated in the weak situation through perceived time pressure. Participants were told that participants

completing this task typically are given 10 minutes to prepare their speech (described as an adequate amount of time); however, they were given 15 minutes for the purpose of the study. Consequences were manipulated in the instruction set by stating that participants would not receive feedback on their performance as this is a novel leadership assessment task with a scoring system that was still undergoing validation.

Leadership Self-Efficacy. Leadership self-efficacy was measured using a scale developed by Ng et al. (2008). This is an 11-item measure (Appendix C) designed to assess an individual's confidence in their ability to perform certain aspects of leadership. The items were measured on a 7-point likert scale from *not at all confident* (1) to *extremely confident* (7). Example items from this measure ask participants to rate their confidence in “coordinating tasks,” “setting direction,” and “creating team spirit.” In the current sample the coefficient alpha was .87. Scores from the 11 items were averaged to create a final leadership self-efficacy score for each participant. Higher scores indicated greater leadership self-efficacy.

Dependent Variables

Challenge and threat appraisal. Stress appraisal of the task was assessed using items from the Primary Appraisal Secondary Appraisal (PASA) measure (Appendix D) developed by Gaab, Rohleder, Nater, and Ehlert (2005). Only the primary appraisal subscale of the measure was used for this study. The primary appraisal subscale assessed participants' view of the task based on two dimensions: challenge and threat. Example challenge appraisal items include “this task challenges me” and “I am eager to tackle this task”. Threat appraisal was assessed with items such as “I do not feel threatened by this task” and “this task scares me.” In previous work, the original threat subscale created by Gaab et al. (2005) demonstrated acceptable internal consistency ($\alpha = .83$). The challenge subscale, however, demonstrated inadequate internal

consistency ($\alpha = .63$). To remedy this issue, in the current study, the challenge subscale was revised in hopes of improving the internal consistency. The challenge subscale retained one item from the original PASA (“this task challenges me”). One item was newly created based on the definition of challenge stress as presenting opportunity for learning and growth (Lazarus & Folkman, 1984) and the remaining two items were from the Roesch and Rowley (2005) challenge subscale. For the revised challenge subscale, the 4-item reliability was $\alpha = .63$. The analysis indicated that removing the item “This task challenges me,” scale reliability would improve to $\alpha = .80$, so this item was deleted to create a final 3-item subscale. For the threat subscale, the original 4-item scale reliability demonstrated acceptable internal consistency reliability ($\alpha = .82$). All items in the modified PASA are scored on a 6-point likert-type scale ranging from *strongly disagree* (1) to *strongly agree* (6). Scores for each subscale were computed by obtaining the average of the three challenge subscale items and the four threat subscale items, respectively to create a final challenge appraisal score and threat appraisal score for each participant.

Task performance. Task performance was assessed by creating a checklist of 27 items participants were instructed to include in their speeches. The checklist (created by the researcher) included items and statements from the informational packet that were deemed relevant information for participants to convey. A final score was created by summing the items contained in participants’ notes file used during the speech delivery. Sample items are included in Appendix E.

Cardiovascular response patterns.

Electrocardiogram (ECG). ECG was measured using a three-lead electrode configuration involving placement of the electrodes on the thorax. One electrode was placed

directly below the participant's right collar bone, a second electrode was placed on the chest below the participant's left ribcage, and the third electrode used as a ground lead was placed parallel to the first, directly below the left collar bone. The ECG recording serves a two-fold purpose, the first is for the assessment of heart rate (used in subsequent calculations of impedance cardiography measures) and to identify the beginning of the electromechanical cycle using the QRS-complex (Sherwood et al., 1990)

Impedance cardiography (ICG). Noninvasive thoracic impedance cardiography (ICG) measurements were acquired via a standard tetrapolar spot electrode placement along the spine of the participant. The first electrode was placed at the top of the neck, with the second electrode placed roughly at the seventh vertebra of the cervical spine (~5 centimeters from the first electrode). The third electrode was placed at a distance of 25-35 centimeters (depending on the height of the participant) below the second electrode. The fourth spot electrode was placed 7 centimeters below the third electrode. Signals were amplified by the Biopac EBI100C system. The impedance waveform (ΔZ) was derived using Acqknowledge 4.4. The software extracted the dZ/dt waveform, providing the following: C-point location using adaptive template matching, B-point location using the minimum derivative in the C-QRS interval and X-point location using the minimum dZ/dt 150 -275 ms after the C point. Each dZ/dt waveform was visually inspected by the researcher for accuracy and manually edited where necessary. The researcher also visually detected the B point in each cycle. Participants' height, weight, and distance between second and third electrodes were entered into the analysis routine as well. The Kubicek/Rho method for stroke volume calculation for was selected.

Impedance cardiography was utilized to assess myocardial contractility. The pre-ejection period (PEP) was measured in milliseconds and values were multiplied by -1 in order

for larger values to indicate greater contractility. Cardiac output (CO) was assessed using impedance cardiography to derive stroke volume, however continuous blood pressure was not recorded due to equipment malfunction, therefore in the calculations of CO and subsequent analyses mean arterial blood pressure values of 80 were used. Total peripheral resistance (TPR) was calculated dividing blood pressure by cardiac output and multiplying this value by 80 (Sherwood et al., 1990). Participant values for the ECG and ICG variables were calculated by acquiring the difference between the baseline average and the preparation phase average to provide a change in cardiovascular activity.

Situational Strength Questionnaire

Overall situational strength was assessed by asking participants to rate the current task on the 4 dimensions of situational strength outlined previously by Meyer et al. (2010). Participants were provided with a general description of the concept of situational strength and subsequently individual definitions of each dimension: Clarity, consistency, constraints, and consequences. Participants rated each dimension on a scale of 1 (*Very weak*) to 7 (*Very strong*). This questionnaire was used as the manipulation check in the pilot study and continued into the focal study in which the 4 dimension scores were summed to create an overall score of situational strength. The situational strength assessment was given at the same point during the procedure in the focal study as in the pilot study. Sample items can be found in Appendix F.

Pilot Study

A pilot study was conducted to assess the manipulations of situational strength. Forty-six participants were recruited in the same manner as the focal study. Participants were randomly assigned to one of three situational strength conditions. Participants were then instructed that they would be completing the full task as described by Hoyt et al. (2010) but, in actuality, only

completed the preparation phase. Participants received the instruction packet for their condition and were given five minutes to read through the entire packet. Before the preparation phase began participants completed the revised PASA and were given a description of the situational strength facets described by Meyer et al. (2010) and were then asked to rate the current task on all four facets from 1 (*very weak*) to 7 (*very strong*). Upon completion of the measures participants were informed that they were not completing the full task and were thanked for their time and participation in the study. No physiological measures were recorded during the pilot study; therefore no electrodes were attached to participants. Participants in the pilot study completed the procedure in the same manner as the focal study with the exception of physiological recording and delivering their speeches.

Pilot study results. The pilot study underwent multiple iterations, during which the instruction set manipulations of situational strength were edited until acceptable ratings were obtained for each dimension. Table 1 displays the mean values of the situational strength dimensions across conditions for the final iteration of the manipulations (N =29). Clarity and consistency were expected to remain constant across conditions, while constraints and consequences were expected to increase from the weak condition to the moderate condition, with the strong condition having the highest ratings. Clarity and consistency remained fairly stable across conditions, with the exception of consistency in the weak condition (4.30), which was lower than the other conditions (but not significantly different). The general trend of mean values for constraints was opposite of the anticipated direction. The mean values for the consequences dimension in the moderate (3.90) and strong (4.67) conditions were in the expected direction; however, the weak condition was rated highest of all (4.80). Post-hoc analyses indicated that only the consequences dimension showed significant mean differences,

with the Tukey's Honestly Significant Difference test revealing a significant difference between the weak and moderate condition. Results of the post-hoc analyses can also be found in Table 1.

Following the final iteration of the manipulations, one additional, minor change was made to the instructional set to attempt to remedy the rating discrepancy for the consequences dimension before beginning the focal study. Due to the performance of the manipulations, the situational strength questionnaire was included in the focal study to continue monitoring the performance of the manipulations.

Results

Hypotheses were first tested using the manipulation of situational strength as a categorical variable. Hypotheses were tested using a mixed-factor regression design in which situational strength condition was a 3-level factor, proposed as the causal antecedent, and LSE as the continuous predictor, as well as an interaction between condition and LSE. Following these analyses, supplemental analyses were carried out using the measure of overall situational strength as a continuous variable; mean centering both LSE and the composite situational strength variable to reduce multicollinearity associated with the interaction term (Aiken & West, 1991). Given that the final sample size was less than one-half of the size recommended in the initial power analysis, the alpha level for analyses was relaxed to .10. As participants data may have been dropped from subsequent analyses, depending on the IV or the DV tested, individual sample sizes and information on why participants data may have been excluded on that variable can be found in Figure 1.

Manipulation Check and Descriptive Statistics

The data for the focal study were tested for normality using the Shapiro-Wilk test. The analyses suggested that all variables were normally distributed. A one-way analysis of variance

(ANOVA) was conducted to test for mean differences between the situational strength dimensions across conditions. On the dimension of clarity ($F(2,30) = 2.99, p = .07$) a significant mean difference was detected. Post-hoc analyses using the Tukey's Honestly Significant Difference test indicated a significant difference between the weak and strong condition which was not intended. On the dimension of consistency ($F(2,30) = 1.66, p = .20$), the mean values were not significantly different, as expected. However, constraints ($F(2,30) = 1.953, p = .16$) and consequences ($F(2,30) = .211, p = .14$) also showed no significant mean differences, indicating the manipulation may not have functioned as intended. Results of the ANOVA and post-hoc analyses can be found in Table 2. Correlations between study variables can be found in Table 3. As expected, challenge and threat were negatively correlated with one another $r(31) = -.51, p < .01$. The situational strength dimensions of clarity and consistency were significantly and positively correlated $r(30) = .37, p < .05$. Constraints and consequences were also significantly and positively correlated, $r(31) = .46, p < .01$. The situational strength dimensions were correlated in the expected directions as consistency and clarity both represent the explication of expected behavior, and constraints and consequences both represent limits to an individual's autonomy, through explicit instruction and through consequences placed on veering away from the intended behavior, respectively.

Challenge appraisals were significantly related to both clarity $r(30) = .36, p < .05$ and consistency $r(31) = .52, p < .01$. These correlations could be linked to the sociocognitive model's secondary appraisal, as clarity and consistency may increase the accuracy of an individual's appraisal of demands presented by a situation. Threat appraisals were related negatively with consistency, which would be expected as a lack of consistency within the task instructions can lead to confusion concerning the demands of the task, increasing threat

appraisals. Threat appraisals were also related, positively, with constraints which was not an expected relationship. Unexpectedly, threat appraisal was also not significantly related to the dimension of consequences. Situational strength condition was dummy coded in the regression such that the moderate condition was used as the referent group. Significant main effects and interactions were examined and the significant findings were further decomposed, by examining the simple slopes and plotted relationships of each condition to assess specific relationships and statistically test for the regions of significance within the interactions.

Primary Appraisal

The categorical by continuous regression ($N = 30$) results indicate that a main effect of condition, specifically the weak condition, ($B = -.92, p = .05$) was present when predicting threat appraisals. This relationship, while not hypothesized, indicates that the slope of the regression line is significantly flatter in the weak condition than the moderate condition. Results can be found in Table 4. The analyses predicting challenge indicated no significant relationships with condition, LSE, or the interaction term (see Table 5). As shown in Figures 2-4, the slope of the trend-line in the weak condition is notably less than the moderate condition, indicating a weaker relationship between LSE and threat appraisals. These results do not support the first hypotheses (1a and 1b).

Task Performance. Participants' total task performance scores were entered as the dependent variable in a mixed factor regression including LSE as the continuous predictor and participant condition as the categorical predictor, as well as the interaction between the two. Participants were not required to create a note sheet; therefore, only participants who recorded their notes were used for these analyses ($N=25$). The results (see Table 6) of the mixed factor regression show no significant relationships in terms of the main effects or interaction term,

meaning there was no difference between the weak condition ($B = -2.83, p = .43$) and the moderate condition, as well as no significant difference between the strong ($B = -3.19, p = .40$) and moderate condition. Thus, hypothesis 2 was not supported.

Cardiovascular reactivity. The cardiovascular variables of interest (PEP, CO, and TPR) were tested in separate mixed factor regression analyses to assess whether situational strength condition and LSE interacted to predict changes in cardiovascular reactivity. Cardiovascular variables were computed as the change score from the baseline period average to the speech preparation phase average. The cardiovascular data were screened by the researcher to remove any files that contained a large presence of unclear signals, due to movement artifacts, electrode contact issues, or equipment malfunction to ensure the interpretability of the data, therefore the final sample for the cardiovascular reactivity analyses was reduced to $N = 19$. Of the three cardiovascular variables, two (PEP & TPR) were found to not be significantly predicted by LSE, condition, or the interaction term. A significant interaction only between LSE and condition emerged for CO specifically in the weak condition ($B = 3.05, p = .1$) indicating a relationship with a steeper positive slope between CO and LSE in the weak condition compared to the moderate condition. Therefore hypotheses 3a and 3b were not supported. Results of the regression analyses can be found in Tables 7 - 9.

Supplemental Analyses (Situational Strength as a Continuous Variable)

Despite the above results, it cannot be ignored that the results of the manipulation check indicate the situational strength manipulations did not work as intended. Therefore, these results should be interpreted cautiously as the primary analyses assume the manipulation was successful in increasing situational strength across condition while the manipulation check indicates that is not the case. To remedy this, a composite variable of situational strength was created by

summing the scores of the four dimensions for each participant. This composite variable was created based on theoretical considerations from Meyer et al. (2010) in which the authors note that composite variables are appropriate in situations where researchers are testing the net effects of situational strength on a given outcome. This follows in line with previous research by Edwards et al. (2014), by weighing perceptions of the situation and the influence on individual outcomes, such that in milder situations, the perceptions of the individual are more strongly related to outcomes, while in stronger situations the situational aspects are a stronger influence. The original hypotheses were re-analyzed using situational strength as a continuous variable.

Primary Appraisal. The new analyses support the first hypothesis partially, specifically in terms of challenge (1a) but not threat (1b). Specifically, the interaction between LSE and situational strength was significant ($B = .23, p = .02$). The relationship between situational strength and challenge appraisal is plotted at three levels of LSE: The mean of LSE, the mean +1 standard deviation, and the mean -1 standard deviation to visualize the interaction in greater detail. An analysis of the simple slopes of LSE indicated that situational strength was significantly related to challenge appraisal for those high in LSE ($B = .25, p = .00$) but not significantly related for those at the mean or LSE ($B = .09, p = .14$) or with low LSE ($B = -.08, p = .46$). The disordinal interaction visually shows that at lower levels of situational strength, those higher in LSE reported less challenge appraisal than those lower in LSE, but as situational strength increased, those higher in LSE perceived more challenge than those lower in LSE. These results can be seen in Figure 5. Additionally, there is a main effect of the composite variable of situational strength ($B = .12, p = .03$), which was not hypothesized, indicating that as situational strength increases, so do appraisals of challenge.

Task Performance

Task performance showed no significant relationship with either LSE ($B = .51, p = .71$), situational strength ($B = -.01, p = .96$), or the interaction term ($B = -.31, p = .57$). This could be attributed to the limitations of the performance measure, which may not represent a comprehensive and fully accurate assessment of performance. Results of the analyses examining performance can be found in Table 12.

Cardiovascular Reactivity

The cardiovascular parameters (PEP, CO, and TPR) were also tested in the supplemental analyses. Despite situational strength being reclassified as a continuous variable, there were no significant relationships with any of the parameters, thus hypotheses 3 a and b were still not supported. Results of these analyses can be found in Tables 13-15. The relationship between appraisal (challenge or threat) and cardiovascular reactivity also was tested and while no statistically significant relationships were found, the general trends of the relationship show promising indication of the previously studied challenge and threat responses (Blascovich & Tomaka, 1996): Increasing challenge appraisals are accompanied by an increase in contractility (PEP), a slight increase in CO and a decrease in TPR, while increasing threat appraisals are associated with a decrease in contractility, a slight increase in CO and no apparent change in TPR. These results can be found in Figures 6-11.

Discussion

Summary of Findings

The current study was designed to integrate psychological, situational, and physiological approaches to stress appraisal to provide insight into a more holistic picture of stress appraisal. Overall, when analyzing situational strength as a categorical predictor the original hypotheses

were not supported, although it should be noted the study was underpowered. However, when analyzed as a continuous variable, situational strength and LSE interacted to predict challenge appraisals such that individuals higher in LSE were appraising the situation as a challenge as the situational strength increased. Physiologically, while underpowered, the general trends of the relationships were indicative of patterns of cardiovascular reactivity associated with challenge appraisals, linking the psychological appraisal with the physiological response.

Primary Appraisal

When analyzing situational strength as a composite, continuous variable, the interaction with challenge appraisal indicates that those higher in LSE appraise the situation as more challenging than those lower in LSE as situational strength increases. This is partially consistent with the previously mentioned work of Courtright et al. (2014) who also found that LSE was a moderating factor that influenced the relationship between developmentally challenging situations and subsequent coping outcomes. The common tie between the stress models previously discussed is a weighting of demands versus resources, and as Bandura (1997) mentions, “stress reactions are governed largely by beliefs of coping efficacy” (p. 262), lending credence to the results of the current study where those higher in LSE were more inclined to perceive the situation as a challenge, or a situation with a conquerable demand that presents an opportunity for growth and learning.

The correlations between measures of appraisal, particularly threat, and the situational strength dimensions also show some unexpected trends. Threat was positively correlated with constraints; one reason for this relationship could be that as constraints limit an individual’s autonomy the manner in which they constrain behavior may be outside of a participant’s perceived abilities or resources. Also, the constraints placed on an individual can imply that

detriments will be had if the constraints are not followed, which can increase threat appraisals. Threat, however, was not significantly related to consequences. While this may appear as an unexpected finding, as increased consequences can easily increase perceived demands and difficulty of a task, the finding is not all that surprising. Conceptually, Meyer et al. (2010) present consequences in reference to the positive or negative consequences associated with an individual's actions; however, the measurement of consequences accurately reflects the above conceptualization and does not explicitly distinguish between positive and negative consequences within the singular rating. This could have led to a mixture of assessments of positive consequences and negative consequences, not accurately reflecting one or the other.

As the current study found, the strength of the situation influences the subsequent stress appraisal based on an individual's LSE. This offers insight into the challenge-hindrance model, such that external stressors may not be as easily categorized as a challenge or a hindrance, the strength of the external stressor (the situational characteristics) can have a meaningful impact on an individual's appraisal of the situation. Similar to the work of Webster, Beehr, and Love (2011), this study presents the notion that it is important to study not only the external stressor, but the nuanced relationship between the situation and the factors influencing an individual's appraisal of it.

While conceptualizing situational strength as a continuous variable, support emerged for the hypothesized interaction. However when experimentally manipulated, situational strength did not interact with LSE. This means the current study did not support the previous work of Marshall and Brown (2006). One particular reason could be the salience of the manipulations, within their study, the authors manipulated only one attribute of their situation, the cues for aggression, and the manipulations were also quite strong. The current study manipulated two

dimensions of situational strength simultaneously, while attempting to hold the other dimensions constant. This could have impacted the overall salience of any one facet as situational strength can be difficult to conceptualize and measure, participants may not have perceived the exact manipulation as intended.

While thinking about situational strength and its influence on stress appraisal, it is important to note the idiosyncratic variation in perceptions of situational strength. Particularly when conceptualizing situational strength as a continuous variable, questions arise such as what is an appropriate range of scores for a moderate situation? A strong situation? What constitutes a moderate situation may vary from person to person depending on the components of situational strength that are attended to by the perceiver. This adds difficulty to the understanding of situational strength and all of the nuances associated with the dimensions.

Although the construct of situational strength is an important one; assessing and quantifying situational strength can prove difficult. The taxonomy developed by Meyer et al. (2010) is a useful advance in this endeavor; however as the current study shows testing this framework can be difficult as the relationships between the dimensions are not yet well understood. The issue is further exacerbated when utilizing experimental manipulations of situational strength. Referencing the four facets, manipulating constraints could also impose increased clarity, or a decrease in consistency could go hand in hand with a decrease in clarity. For this reason, manipulating situational strength may not be the optimal route. It may, indeed, be more important to only examine perceptions of situational strength when studying relationships with various outcomes as manipulating objective factors of the situation may be perceived differently by each individual involved.

This notion is similar to the knowledge-appraisal personality architecture (KAPA), described by Cervone (2004). This model describes the relationship between knowledge, which is described as an understanding of how things currently are and how things work (Lazarus, 1991), and appraisals which are relational judgments about the meaning of a situation for the individual. This, in essence, is quite similar to the current study where situational strength (i.e., the way things are and work within the task) and self-efficacy were found to interact in predicting stress appraisals (relational meaning) of the task. This theory lends credence to the idea that perhaps studying the individual's perception is more efficient than objectively manipulating situational strength to understand relationships, as highlighted by the findings of the current study when situational strength was assessed as a continuous measure of perception.

Task Performance

The current study found no significant predictor of task performance in either the initial or supplementary analyses. This could be due to a multitude of design factors, the most evident being the scoring system was created by the researcher based on information participants should include in their speeches. This list could be biased and not be a fully comprehensive assessment of performance. Conceptually, higher self-efficacious individuals should perceive situations as more challenging as their evaluation of self-resources should be higher than less self-efficacious individuals (Chemers, Hu, & Garcia, 2001; Courtright et al., 2014). Subsequently, the challenge-hindrane model would indicate that the increase in challenge appraisals would result in increased performance from the individuals involved (Cavanaugh et al., 2000).

Cardiovascular Reactivity

The current study sought to replicate the patterns of cardiovascular reactivity associated with adaptive, challenge stress appraisals, and malignant threat stress appraisals. Due to a small

sample size, the results of the statistical analyses are underpowered and therefore difficult to accurately interpret to draw conclusions. However, in a visual inspection of the graphical trend-lines, increasing appraisals of challenge are associated with a decrease in PEP time, a slight increase in CO, and a decrease in TPR which is consistent with the pattern previously studied by Blascovich and Tomaka (1996). The trend-lines associated with threat appraisals also resembled the previously established patterns (decrease in contractility, slight increase in CO, and no change in TPR).

The relationship between stress appraisal and physiological responses indicates that challenge appraisal can manifest as a more adaptive cardiovascular response relative to threat responding (Blascovich and Tomaka, 1996), which is influential in impacting employee health in the long term as repeated, threat responding can be detrimental (McEwen, 1998). With the examination of situational strength's influence on stress appraisals, it would be useful for those involved in designing leader development or for individuals in leadership positions to take into account the situational characteristics of their developmental opportunities so that they may create situations that lend themselves to challenge appraisal and avoid threat cardiovascular responses.

Practical Implications

Organizations interested in introducing developmentally challenging situations or leader development tasks may take note of the accompanying situational strength to ensure that developmental opportunities provide the dimensions of situational strength related to challenge appraisals (clarity & consistency) in the current study, so that leaders are clear on the expectations set out for them and that information is consistent across people and time. This can lead to an increased understanding of the responsibilities they face, making the demands of the

tasks more transparent.. In doing this, organizations can increase the likelihood that their leaders will perceive situations as challenging rather than threatening, experience less threat-related cardiovascular responses, and ultimately perform at a higher level.

Interventions or programs can also be designed to increase a leader's self-efficacy (McNatt & Judge, 2008), subsequently increasing their perception of their personal resources so that when faced with leader development programs or developmentally challenging opportunities, challenge appraisals are more likely to be the outcome. Increasing a leader's self-efficacy alongside the clarity and consistency of the responsibilities they face can simultaneously increase the transparency of the task demands and their perceived resources available to handle the task. This can result in a more accurate assessment of demands and resources and ultimately result in an appraisal of challenge rather than threat, leading to increased engagement and performance from an organizations leaders (Courtright, Colbert, & Choi, 2014).

Limitations

Results should be interpreted in light of potential limitations. Specifically, the initial manipulation of situational strength was unsuccessful, rendering the subsequent results difficult to interpret accurately. However, once situational strength was reclassified and re-analyzed as a continuous variable, that issue was partially remedied and the results and implications became clearer. The physiological analyses were also underpowered with a small sample size, making statistical interpretations difficult as the coefficient estimates may be biased, either over or underestimated. While the general trends of cardiovascular reactivity to challenge appraisal supported the previous work by Blascovich and Tomaka (1996), the issue of sample size and statistical insignificance cannot be ignored.

Future Directions

One of the primary objectives of the current study was to follow the position that Blascovich and Tomaka (1996) advocated for, that multidimensional, integrative approaches to studying stress are necessary to understand the full picture. Future work in this area should seek to replicate the current study using a larger sample size and improved measures of situational strength. Future research should strive to integrate theories on stress appraisal and responding to allow for a more complete approach to understanding the relationship between individuals, situations, and physiological responding to stressful encounters. The preliminary results of the study offer insight into avenues organizations can access to increase the likelihood of leaders appraising situations as challenging as opposed to threatening with the interaction of situational strength and leadership self-efficacy

It is also important to note the notion of reappraisal when researching stress. Individuals are able to appraise and reappraise situations as new information becomes available either from the situation or from within themselves (e.g., interoception, affective responses, introspection) (Blascovich and Tomaka, 1996). The KAPA model supports the notion of reappraisal as well, stating that “appraisals can shift dynamically as people evaluate ongoing occurrences” (Cervone, 2004, p. 187). Therefore research should strive to be sensitive to the time series during which stress appraisals are assessed. Within the current study it is possible that an individual’s stress appraisal before the task began could be altered and reappraised as more information was gained from reading the instruction set (which could be said as well for situational strength appraisals), such as an increased understanding of the demands of the task or the difficulty level of the task. Future research should assess the dynamic nature of stress appraisals and how rapidly updating information on task or situation can alter one’s reappraisal.

Also, Meyer et al. (2010) suggest that studies examining the net effect of situational strength may use an aggregation of the dimensions to test relationships, however it has yet to be tested how the dimensions interact. Future work in the area of situational strength utilizing this taxonomy should seek to test the interactive effects of the dimension to further understand how situational characteristics can impact perceptions.

Conclusion

The current study sought to provide insight into the interaction of individual differences and situational characteristics and the subsequent stress appraisals it can create. Specifically, the varying strength of a leadership situation can differentially lend itself to stress appraisals of challenge or threat. Therefore, those involved in leader development efforts should remain cognizant of the potential outcomes of the situations they create and are involved in so that individuals perceive the developmental opportunities as a challenging opportunity for learning and growth and development.

References

- Akinola, M. (2010). Measuring the pulse of an organization: Integrating physiological measures into the organizational scholar's toolbox. *Research in Organizational Behavior, 30*, 203-223.
- Allport, G. W. (1937). *Personality* (pp. 173-181). New York: Holt.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Macmillan.
- Bass, B. M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics, 18*(3), 19-31.
- Blascovich, J., & Tomaka, J. (1996). The biopsychosocial model of arousal regulation. *Advances in Experimental Social Psychology, 28*, 1-52.
- Brief, A. P., & George, J. M. (1995). Psychological stress and the workplace: A brief comment on Lazarus' outlook. In R. Crandall & P. L. Perrewé (Eds.), *Series in health psychology and behavioral medicine. Occupational stress: A handbook* (pp. 15-19). Philadelphia, US: Taylor & Francis.
- Brown, S. P., Westbrook, R. A., & Challagalla, G. (2005). Good cope, bad cope: adaptive and maladaptive coping strategies following a critical negative work event. *Journal of applied psychology, 90*(4), 792-798.
- Campbell, M., Innis Bates, J., Marin, A., & Meddings, K. (2007). The stress of leadership: Center for Creative Leadership.
- Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among US managers. *Journal of Applied Psychology, 85*(1), 65-74.

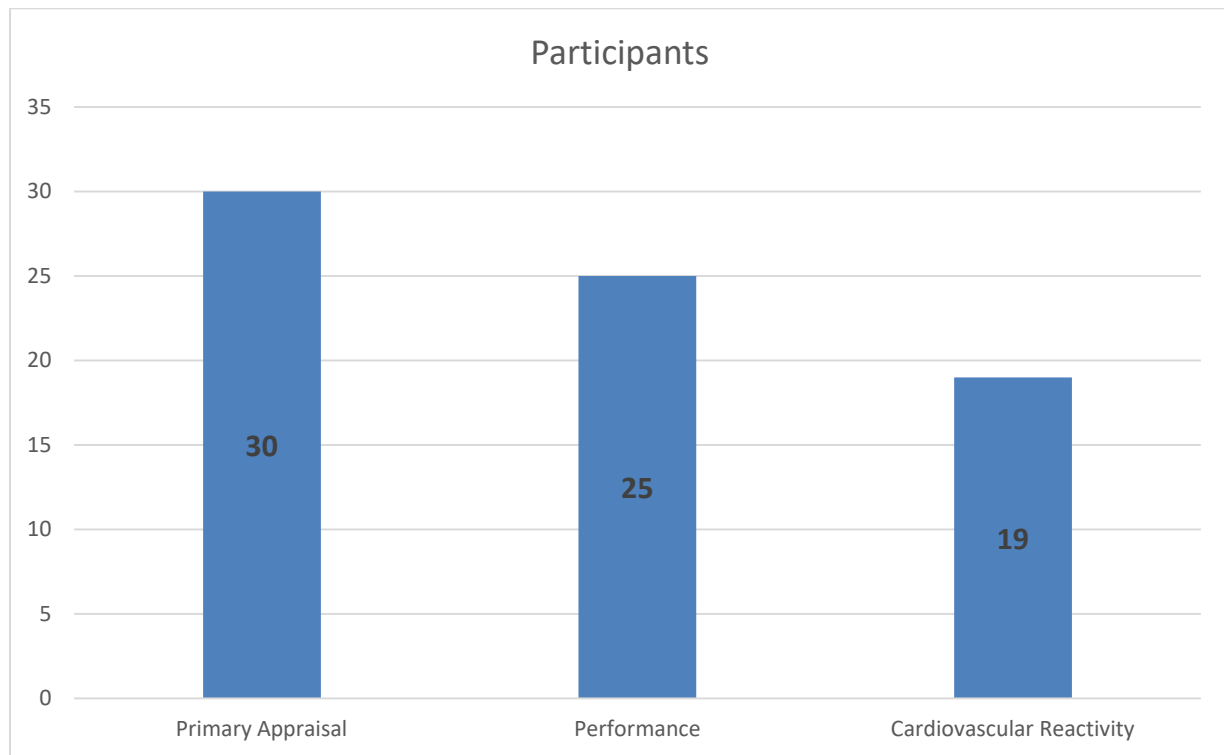
- Cervone, D. (2004). The architecture of personality. *Psychological Review*, *111*(1), 183-204.
- Chemers, M. M., Hu, L. T., & Garcia, B. F. (2001). Academic self-efficacy and first year college student performance and adjustment. *Journal of Educational psychology*, *93*(1), 55-64.
- Courtright, S. H., Colbert, A. E., & Choi, D. (2014). Fired up or burned out? How developmental challenge differentially impacts leader behavior. *Journal of Applied Psychology*, *99*(4), 681-696.
- Day, D. V. (2001). Leadership development: A review in context. *The Leadership Quarterly*, *11*(4), 581-613.
- Day, D. V., Fleenor, J. W., Atwater, L. E., Sturm, R. E., & McKee, R. A. (2014). Advances in leader and leadership development: A review of 25 years of research and theory. *The Leadership Quarterly*, *25*(1), 63-82.
- Deloitte Consulting, L. L. P., & by Deloitte, B. (2014). Global Human Capital Trends 2014: Engaging the 21st Century Workforce.
- DeRue, D. S., & Wellman, N. (2009). Developing leaders via experience: the role of developmental challenge, learning orientation, and feedback availability. *Journal of Applied Psychology*, *94*(4), 859-875
- Edwards, B. D., Franco-Watkins, A. M., Cullen, K. L., Howell, J. W., & Acuff Jr, R. E. (2014). Unifying the challenge-hindrane and sociocognitive models of stress. *International Journal of Stress Management*, *21*(2), 162-185.
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175-191.

- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, *50*(5), 992-1003.
- Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, *55*, 745-774.
- Gaab, J., Rohleder, N., Nater, U. M., & Ehlert, U. (2005). Psychological determinants of the cortisol stress response: the role of anticipatory cognitive appraisal. *Psychoneuroendocrinology*, *30*(6), 599-610.
- Hoyt, C. L., Johnson, S. K., Murphy, S. E., & Skinnell, K. H. (2010). The impact of blatant stereotype activation and group sex-composition on female leaders. *The Leadership Quarterly*, *21*(5), 716-732.
- James, L. R., & Mazerolle, M. D. (2002). *Personality in work organizations*. Thousand Oaks, CA: Sage Publications
- Kirschbaum, C., Pirke, K. M., & Hellhammer, D. H. (1993). The 'Trier Social Stress Test'—a tool for investigating psychobiological stress responses in a laboratory setting. *Neuropsychobiology*, *28*(1-2), 76-81.
- Lazarus, R. S., & Folkman, S. (1984). Coping and Adaptation. In W. D. Gentry (Ed.), *The Handbook of Behavioral Medicine* (pp. 282-325.). New York Guilford.
- Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality*, *1*(3), 141-169.
- LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor–hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of Management Journal*, *48*(5), 764-775.

- Marshall, M. A., & Brown, J. D. (2006). Trait aggressiveness and situational provocation: A test of the traits as situational sensitivities (TASS) model. *Personality and Social Psychology Bulletin*, 32(8), 1100-1113.
- McEwen, B. S. (1998). Stress, adaptation, and disease: Allostasis and allostatic load. *Annals of the New York Academy of Sciences*, 840(1), 33-44.
- McNatt, D. B., & Judge, T. A. (2008). Self-efficacy intervention, job attitudes, and turnover: A field experiment with employees in role transition. *Human Relations*, 61(6), 783-810.
- 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.
- Mischel, W. (1977). The interaction of person and situation. In D. Magnusson & N. S. Endler (Eds.), *Personality at the crossroads: Current issues in interactional psychology* (pp. 333-352). Hillsdale, NJ: Lawrence Erlbaum
- Ng, K. Y., Ang, S., & Chan, K. Y. (2008). Personality and leader effectiveness: A moderated mediation model of leadership self-efficacy, job demands, and job autonomy. *Journal of Applied Psychology*, 93(4), 733-743.
- Pearsall, M. J., Ellis, A. P., & Stein, J. H. (2009). Coping with challenge and hindrance stressors in teams: Behavioral, cognitive, and affective outcomes. *Organizational Behavior and Human Decision Processes*, 109(1), 18-28.
- Roesch, S. C., & Rowley, A. A. (2005). Evaluating and developing a multidimensional, dispositional measure of appraisal. *Journal of Personality Assessment*, 85(2), 188-196.

- Selye, H. (1956). *The stress of life*. New York, NY: McGraw-Hill.
- Selye, H. (1964). *From dream to discovery-on being a scientist*. New York, NY: McGraw Hill.
- Sherwood, A., Allen, M. T, Fahrenberg, J., Kelsey, R. M., Lovallo, W. R., & van Doornen, L. J. (1990). Methodological guidelines for impedance cardiography. *Psychophysiology*, 27, 1-23.
- Snyder, M., & Ickes, W. (1985). Personality and social behavior. *Handbook of Social Psychology*, 2, 883-947.
- Towler, A. J. (2003). Effects of charismatic influence training on attitudes, behavior, and performance. *Personnel Psychology*, 56(2), 363-381.
- Van Velsor, E., McCauley, C. D., & Ruderman, M. N. (Eds.). (2010). *The center for creative leadership handbook of leadership development* (Vol. 122). John Wiley & Sons.
- Webster, J. R., Beehr, T. A., & Love, K. (2011). Extending the challenge-hindrance model of occupational stress: The role of appraisal. *Journal of Vocational Behavior*, 79(2), 505-516.
- Wiita, N. E. (2012). *Differential framing of situational strength: An individual differences-based conceptualization of work contexts*. Georgia Institute of Technology.
- Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal*, 29(3), 663-676.

Figure 1. N sizes for Study Variables



Note. 5 participants did not complete note sheets and their performance data were unavailable. Interpretable cardiovascular data was available for 19 participants; of those 19 only 2 participants did not have performance data resulting in 17 participants having a “full” data set (Primary appraisal, performance, and cardiovascular reactivity).

Figure 2. *Timeline of Procedure*

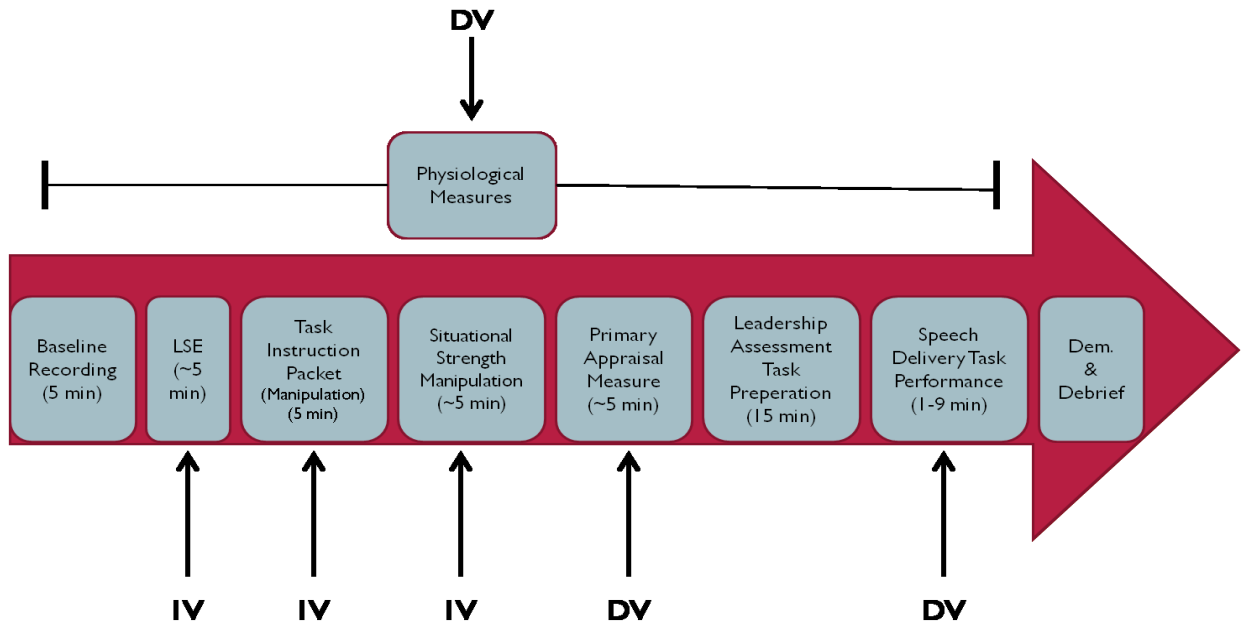


Figure 3. *LSE Predicting Threat in the Weak Condition*

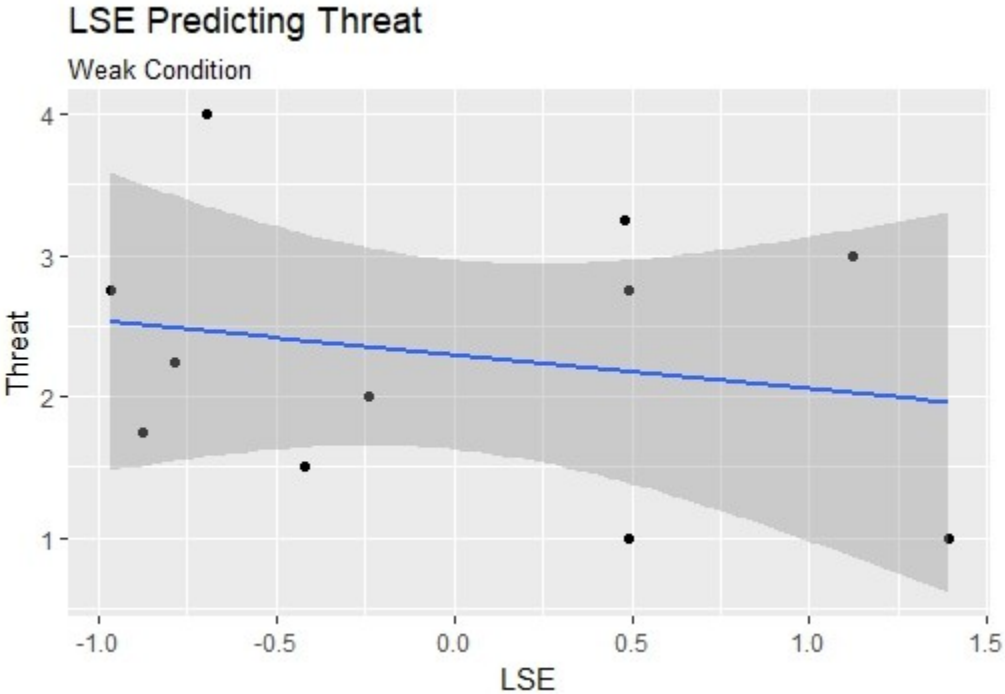


Figure 4. *LSE Predicting Threat in the Moderate Condition*

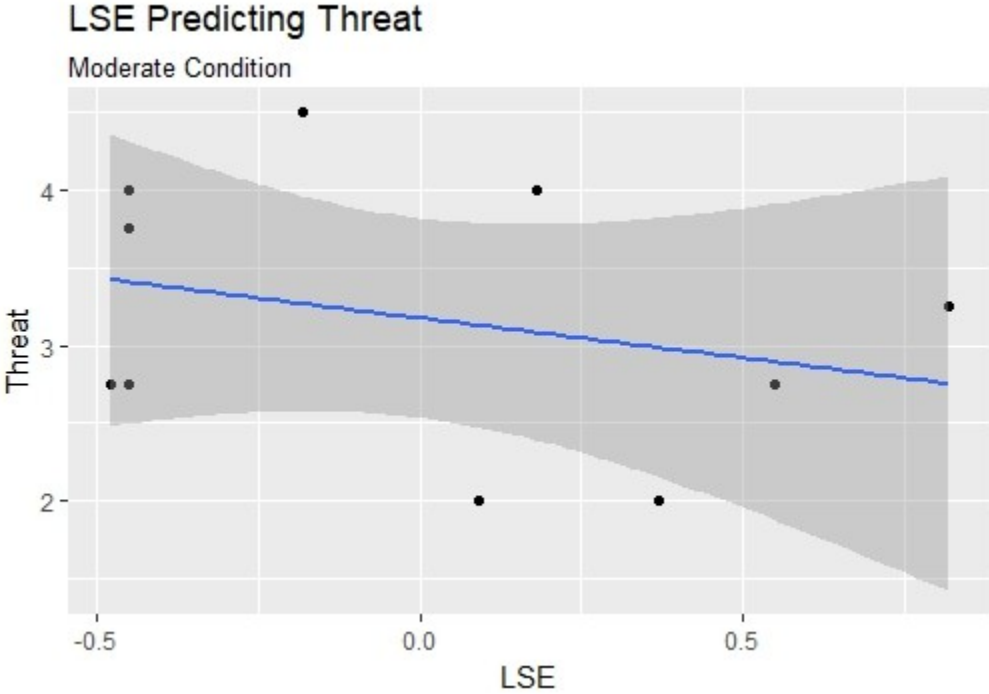


Figure 5. LSE Predicting Threat in the Strong Condition

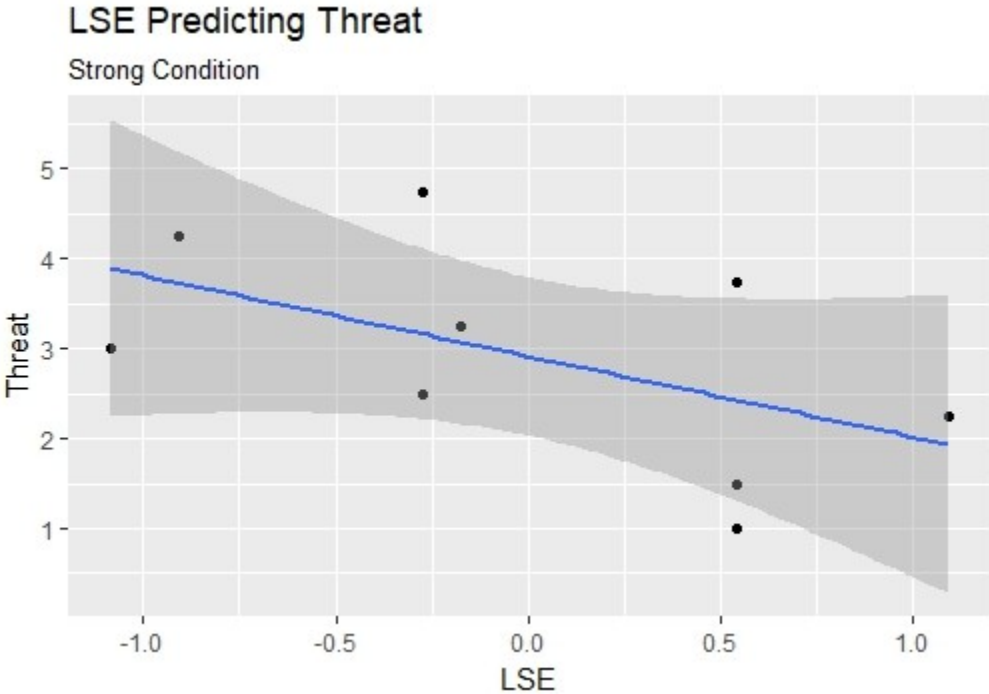


Figure 6. *Situational Strength Predicting Challenge Appraisals at 3 Levels of LSE*

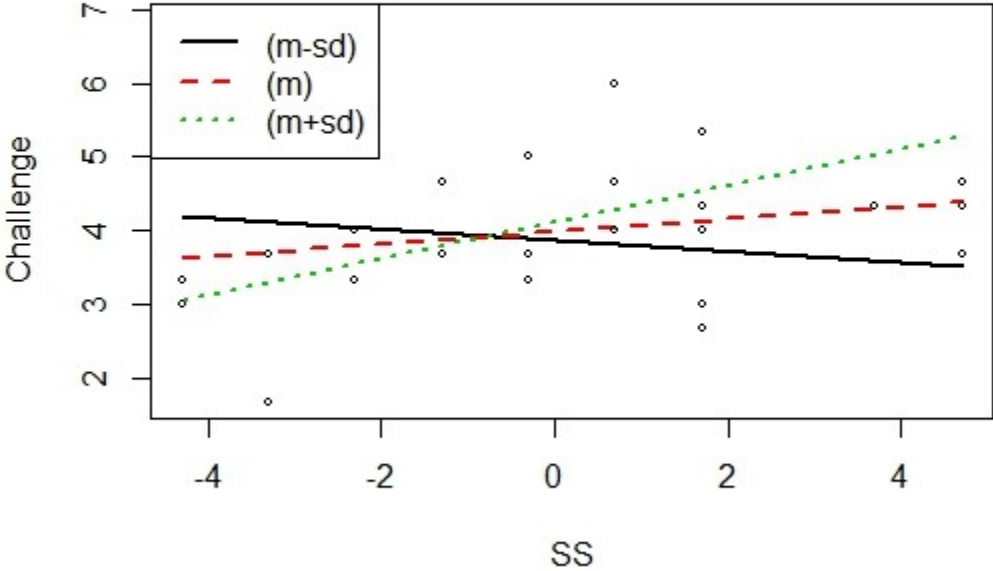


Figure 7. *Relationship Between Challenge Appraisal and PEP*

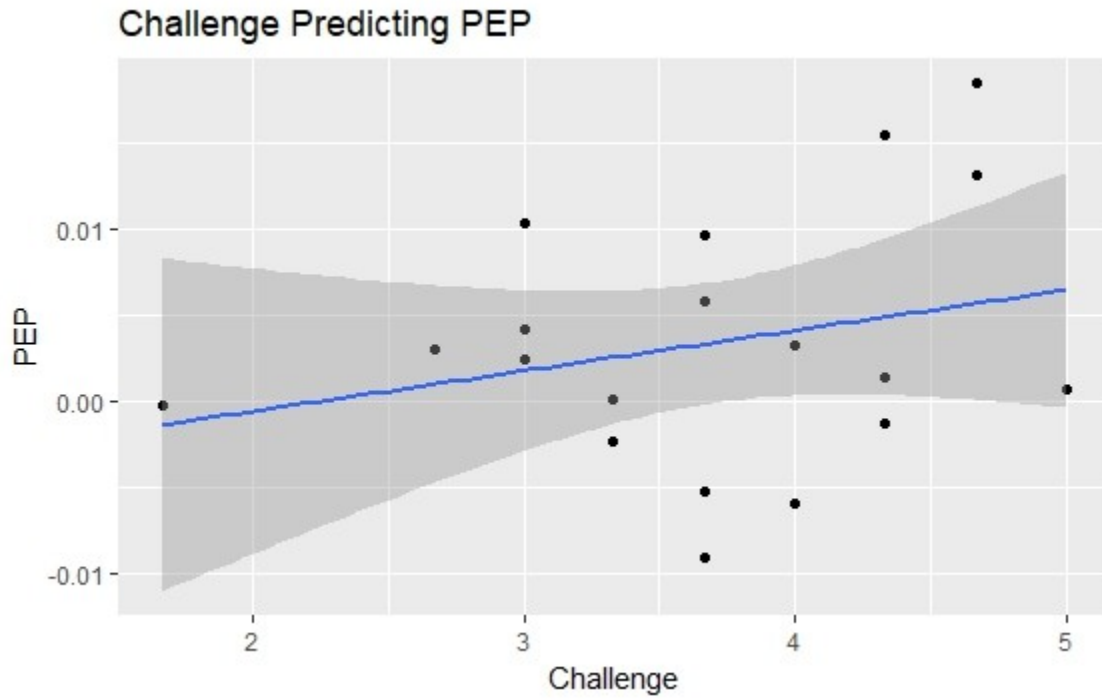


Figure 8. Relationship Between Threat Appraisal and PEP

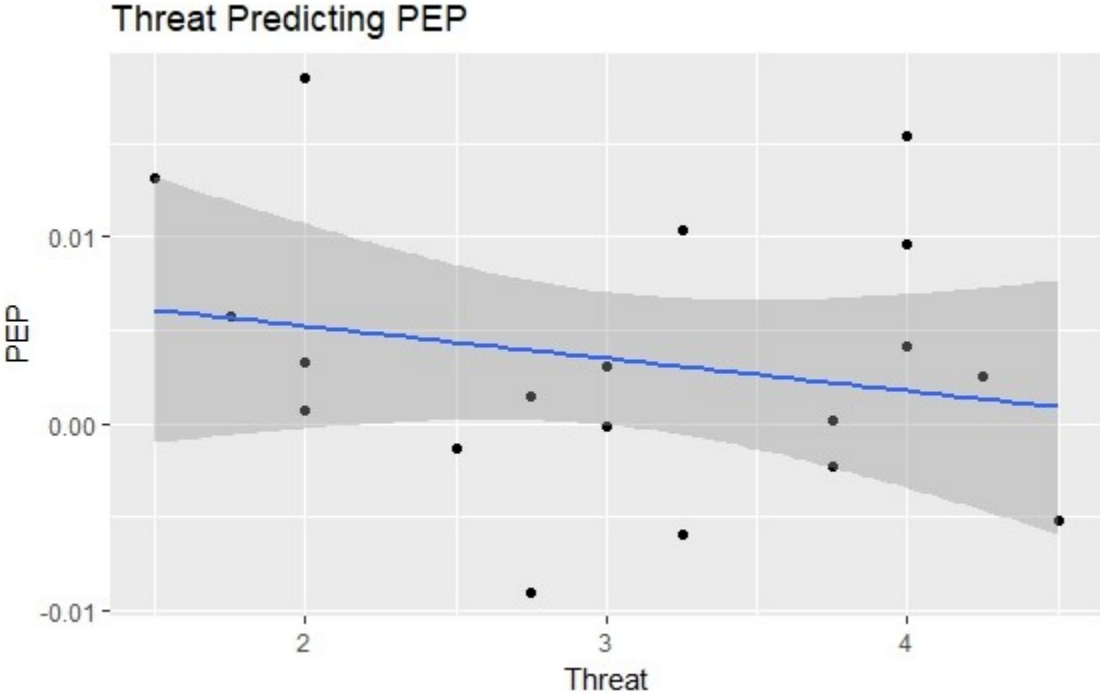


Figure 9. Relationship Between Challenge Appraisal and CO

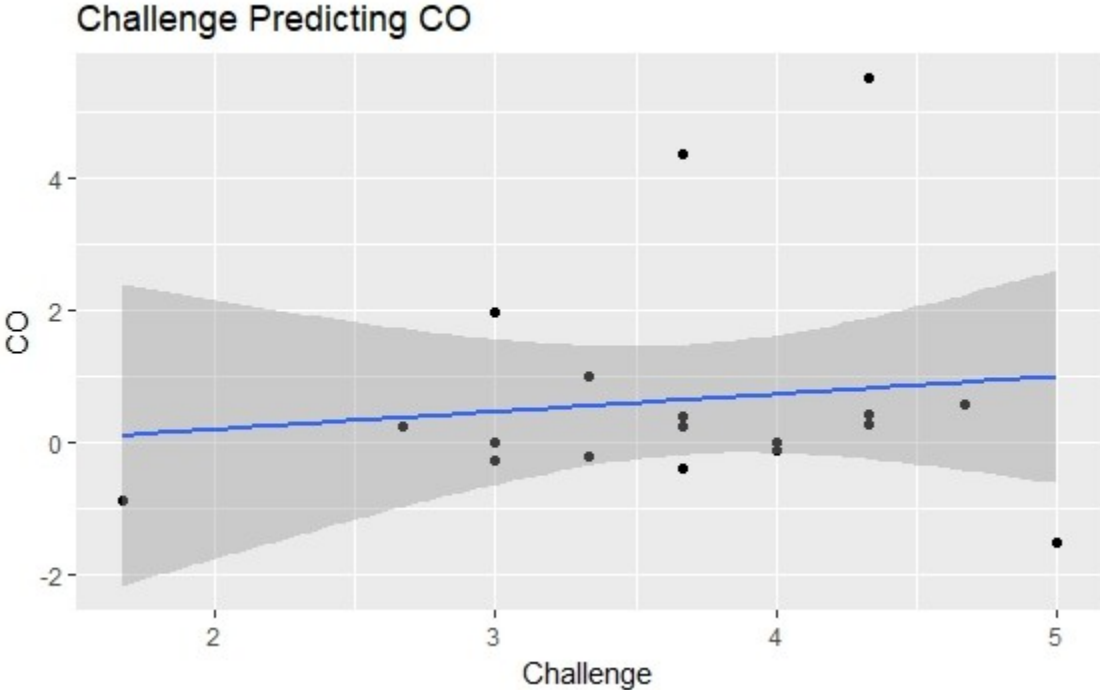


Figure 10. Relationship Between Threat Appraisal and CO

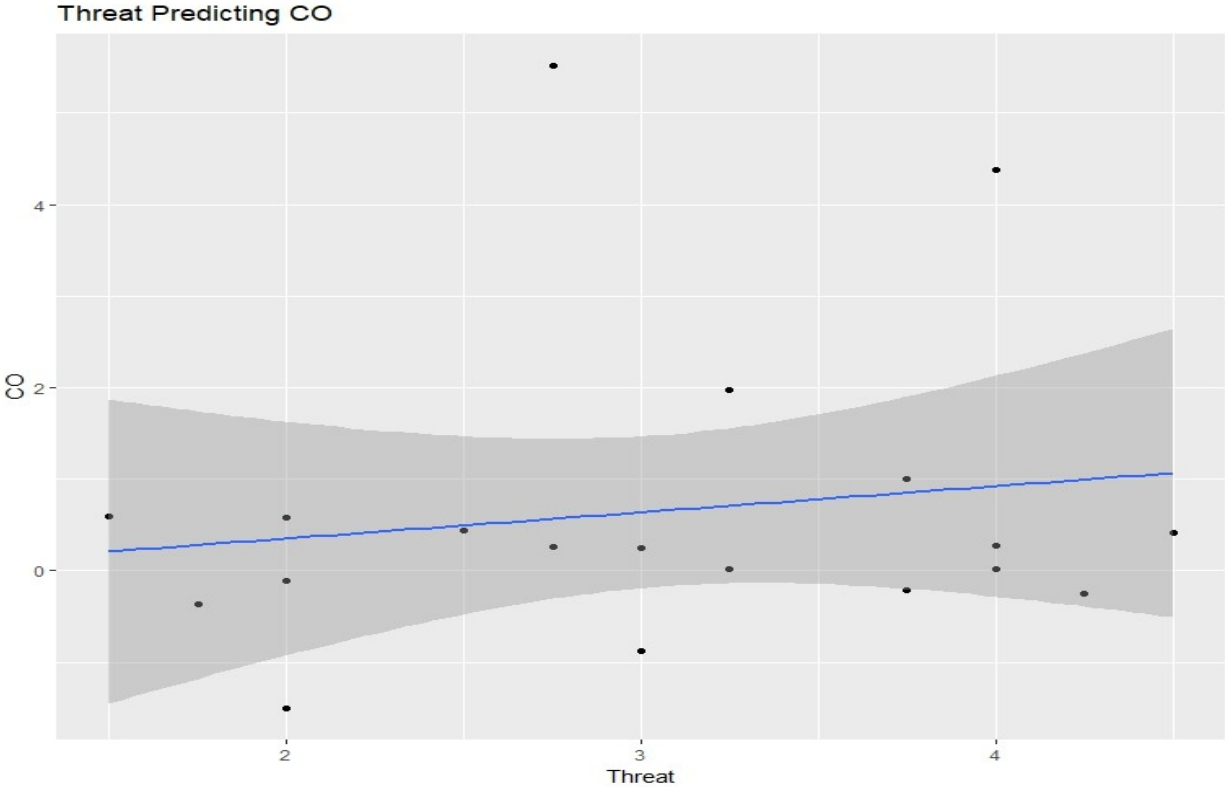


Figure 11. Relationship Between Challenge Appraisal and TPR

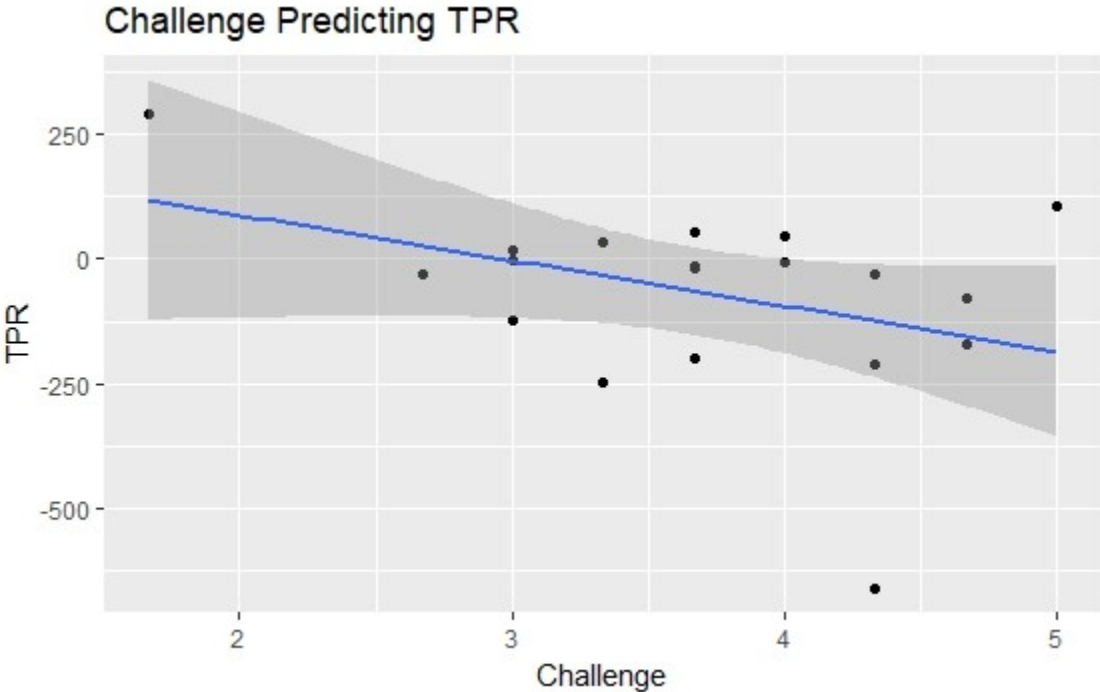


Figure 12. Relationship Between Threat Appraisal and TPR

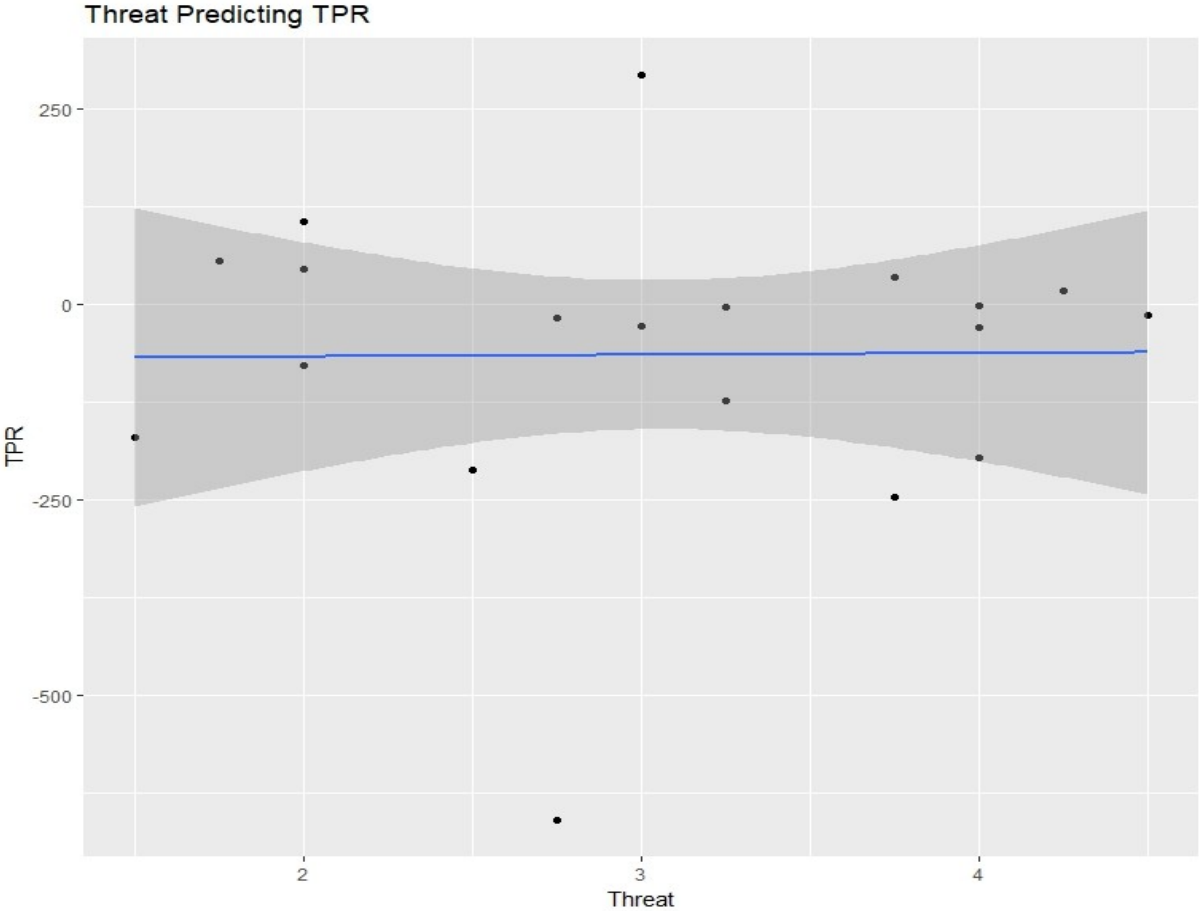


Table 1

Mean Rating of Situational Strength Dimensions Across Conditions (Pilot Study)

Condition	Clarity	SD	Consistency	SD	Constraints	SD	Consequences	SD
Weak	5.00	1.56	4.30	1.34	4.10	1.29	4.80 _a	.63
Moderate	5.30	1.34	5.30	1.49	3.90	.99	3.90 _b	.99
Strong	5.00	1.32	5.11	1.90	3.56	1.67	4.67 _{ab}	.71

Note. $N = 29$. For mean values with subscripts, means that do not share subscripts differ by $p < .05$ according to Tukey's Honestly Significant Difference.

Table 2. *Situational Strength and Perceived Stress Means by Condition*

Condition	N	Threat	SD	Challenge	SD	Clarity	SD	Consistency	SD	Constraints	SD	Consequences	SD
Weak	11	2.30	.95	3.97	1.15	4.36 _a	1.12	5.36	1.12	3.36	1.03	4.00	.89
Moderate	10	3.18	.87	3.90	.70	5.00 _{ab}	.94	4.8	.79	4.00	1.25	4.10	1.45
Strong	9	2.91	1.24	3.81	.75	5.44 _b	.88	5.56	.88	4.22	.67	5.00	1.12

Note. $N = 30$. For mean values with subscripts, means that do not share subscripts differ by $p < .05$ according to Tukey's Honestly Significant Difference.

Table 3. *Correlation Matrix of Study Variables*

	1	2	3	4	5	6	7	8	9	10	11
1)LSE Avg	.87										
2)Threat	-.30	.72									
3)Challenge	.21	-.51**	.75								
4)Clarity	-.04	-.23	.36*	-							
5)Consistency	.00	-.37*	.52**	.37*	-						
6)Constraints	-.21	.35*	-.14	.21	-.30	-					
7)Consequences	-.41*	.16	.04	.17	.11	.46*	-				
8)Performance ^a	.26	.02	-.06	-.29	.07	-.20	-.17	-			
9)ΔPEP ^b	-.13	.24	-.30	.09	-.10	.32	.30	.34	-		
10)ΔCO ^b	.09	.16	.13	.19	-.15	.50*	.04	.00	-.17	-	
11)ΔTPR ^b	.16	.01	-.39	-.39	.01	-.57*	-.22	.15	.11	-.85**	

*Note: Scale Reliabilities can are on the Diagonal; Note. *p<.1** p < .05, *** p < .01, **** p < .001. ^an=25. ^bn=19, for all other measures n = 30.*

Table 4. *Results of Regression Analysis Predicting Threat*

Predictor	B	SE B	P
Intercept	3.20	0.32	.00****
Weak Cond	-.92	.44	.05**
Strong Cond	-.65	.50	.21
LSE	-.51	.70	.47
Weak Cond x LSE	.27	.79	.74
Strong Cond x LSE	-.39	.85	.65
R ²		.27	

Note. *p<.1 ** p < .05, *** p < .01, **** p < .001. n = 30.

Table 5. *Results of Regression Analysis Predicting Challenge*

Predictor	B	SE B	<i>p</i>
Intercept	3.87	.27	.00****
Weak Cond	.07	.38	.85
Strong Cond	.25	.43	.56
LSE	.75	.60	.22
Weak Cond x LSE	-1.13	.68	.11
Strong Cond x LSE	-.01	.73	.99
R ²		.21	

Note. * $p < .1$ ** $p < .05$, *** $p < .01$, **** $p < .001$. $n = 30$.

Table 6. *Results of Regression Analysis Predicting Task Performance*

Predictor	B	SE B	<i>p</i>
Intercept	11.59	1.28	.00****
Weak Cond	3.03	2.03	.15
Strong Cond	1.64	2.01	.43
LSE	2.65	2.82	.36
Weak Cond x LSE	-2.83	3.48	.43
Strong Cond x LSE	-3.19	3.67	.40
R ²		.14	

Note. * $p < .1$ ** $p < .05$, *** $p < .01$, **** $p < .001$. $n = 25$.

Table 7. *Challenge and Threat Appraisal Predicting PEP*

Predictor	B	SE B	<i>P</i>
Intercept	.00	.00	.35
Weak Cond	.00	.00	.47
Strong Cond	.00	.00	.82
LSE	.00	.00	.65
Weak Cond x LSE	.00	.00	.90
Strong Cond x LSE	.06	.42	.76
R ²		.09	

Note. * $p < .1$ ** $p < .05$, *** $p < .01$, **** $p < .001$. $n = 19$.

Table 8. *Results of Regression Analysis Predicting CO*

Predictor	B	SE B	<i>p</i>
Intercept	-.13	0.61	.83
Weak Cond	2.23	1.02	.05**
Strong Cond	1.29	.1.01	.23
LSE	-.42	1.12	.71
Weak Cond x LSE	3.05	1.74	.10*
Strong Cond x LSE	.77	1.49	.62
R ²		.35	

Note. * $p < .1$ ** $p < .05$, *** $p < .01$, **** $p < .001$. $n = 19$.

Table 9. *Results of Regression Analysis Predicting TPR*

Predictor	B	SE B	<i>p</i>
Intercept	19	71	.79
Weak Cond	-126	119	.31
Strong Cond	-192	118	-.13
LSE	189	130	.17
Weak Cond x LSE	-335	203	.12
Strong Cond x LSE	-236	174	.20
R ²		.31	

Note. * $p < .1$ ** $p < .05$, *** $p < .01$, **** $p < .001$. $n = 19$.

Tables 10-15 include results of the supplemental analyses using Situational Strength as a continuous variable.

Table 10. *Results of Regression Analysis Predicting Threat with LSE and Situational Strength*

Predictor	B	SE B	<i>p</i>
Intercept	2.66	.20	.00***
LSE	-.44	.29	.13
Situational Strength	-.04	.07	.56
LSE x Situational Strength	-.13	.13	.31
R ²		.14	

Note. * $p < .1$ ** $p < .05$, *** $p < .01$, **** $p < .001$. $n = 30$.

Table 11. *Results of Regression Analysis Predicting Challenge with LSE and Situational Strength*

Predictor	B	SE B	<i>p</i>
Intercept	4.02	.14	.00***
LSE	.18	.21	.40
Situational Strength	.12	.05	.03**
LSE x Situational Strength	.23	.09	.02**
R ²		.34	

Note. * $p < .1$ ** $p < .05$, *** $p < .01$, **** $p < .001$. $n = 30$.

Table 12. *Results of Regression Analysis Predicting Performance with LSE and Situational Strength*

Predictor	B	SE B	<i>p</i>
Intercept	12.93	.84	.00****
LSE	.51	1.35	.71
Situational Strength	-.01	.29	.96
LSE x Situational Strength	-.31	.54	.57
R ²		.02	

Note. * $p < .1$ ** $p < .05$, *** $p < .01$, **** $p < .001$. $n = 25$.

Table 13. *Results of Regression Analysis Predicting PEP with LSE and Situational Strength*

Predictor	B	SE B	<i>p</i>
Intercept	.00	.00	.19
LSE	.00	.00	.99
Situational Strength	.00	.00	.49
LSE x Situational Strength	.00	.00	.97
R ²		.06	

Note. * $p < .1$ ** $p < .05$, *** $p < .01$, **** $p < .001$. $n = 19$.

Table 14. *Results of Regression Analysis Predicting CO with LSE and Situational Strength*

Predictor	B	SE B	<i>p</i>
Intercept	.97	.56	.11
LSE	.84	.79	.31
Situational Strength	.25	.19	.21
LSE x Situational Strength	.09	.33	.80
R ²		.11	

Note. * $p < .1$ ** $p < .05$, *** $p < .01$, **** $p < .001$. $n = 19$.

Table 15. *Results of Regression Analysis Predicting TPR with LSE and Situational Strength*

Predictor	B	SE B	<i>p</i>
Intercept	-104.23	59.04	.10
LSE	-45.79	82.43	.59
Situational Strength	-42.16	20.24	.05*
LSE x Situational Strength	-29.46	34.61	.41
R ²		.25	

Note. * $p < .1$ ** $p < .05$, *** $p < .01$, **** $p < .001$. $n = 19$.

Appendix A Task Instructions

PLEASE DO NOT WRITE ON THIS PACKET

Organization background

Amidex is a multinational organization that manufactures and distributes pharmaceuticals. It employs about 50,000 people worldwide – its top managers are mostly White males. Amidex has announced openings for college graduates in its management training program. It is seeking high potential graduates to be trained for placement in management positions. Any major is appropriate because the training program will be tailored to the interests, aptitude, and work experience of each trainee.

Historically, the Amidex training program has attracted and recruited applicants who have excellent academic achievement records. However, in emphasizing academic accomplishments, the organization has rejected applicants who are not academic stars but who have demonstrated leadership in other areas. The organization has now decided that they wish to retain a more diverse workforce by recruiting individuals who have demonstrated competency across a wide range of areas. There has been some conflict within the organization about this issue. Some detractors see it as an opportunity to increase the number of minorities in the organization, regardless of how competent they are for the positions. Further, Amidex is in a conservative business. Detractors within the organization believe Amidex could lose their clients if they adopt this new approach to recruitment. However, supporters of the new approach to recruitment, emphasize the benefits of recruiting people from diverse backgrounds. Organizations that value diversity are more innovative than their conservative competitors. Amidex is trailing behind their competitors and some senior executives believe this is due to the organization's reluctance to move with the times. Further, the demographic composition of the American Labor force is changing as the proportions of both women and members of minority groups have steadily increased in recent years. Some senior executives believe that Amidex employees will not be effective at their jobs unless they acquire skills in dealing with culturally different co-workers whom they work with, work for, and supervise.

To achieve the new objective of the organization, Amidex have recruited a number of undergraduates to help identify candidates for their management training program. Other successful organizations have recruited undergraduates to help with recruiting efforts. Students appear particularly adept at identifying applicants with diverse interests, values and personalities.

Information about Pat Jackson (your role)

You joined Amidex 5 years ago and your promotion to Recruitment Manager is a recent event. You joined the organization through its management training program and feel proud that you are in charge of a program that gave you such valuable training and experience. In fact, you believe that without that training you would not have gained such an early promotion. All the usual personnel services such as recruitment, hiring, promotions, training, and contract negotiations are handled through your office. You are in charge of 15 people, 3 of whom were recruited through the management training program.

PLEASE DO NOT WRITE ON THIS PACKET

Task instructions

The aim of this task is for you to deliver instructions to your two followers on how to complete a selection/resume-screening task. Your two followers, whom you have already met, will view your instructions on their computer in another experimental room.

Your followers have been given a set of 12 resumes and evaluations sheets and need instructions on how to screen the resumes. In addition, you want the recruiters to write a short letter to their top applicant persuading them to join the organization. The followers will have 20 minutes to complete the task. The resumes are from undergraduate students from other universities. As Pat Jackson, you are required to give clear instructions to the undergraduate recruiters on how to perform the task.

Although the applicant should have a BA/BS by May 2013, the primary concern should be to hire employees whose background suggests they will be effective managers. The undergraduate recruiters need to review each resume to judge whether the applicant meets the requirements. On the evaluation sheet is a list of dimensions. The undergraduate recruiters need to evaluate each applicant on the set of dimensions and provide comments on how the applicant fits or does not fit the dimension. The evaluation sheet contains ratings (on a 1 –7scale) and space for the recruiters to record evidence of how each applicant has demonstrated or failed to demonstrate achievement in this area. Recruiters also need to provide a general evaluation of the candidate. The dimensions stated on the evaluation sheet include:

Willingness to work hard (going beyond the minimum required)

Innovation (looks for new challenges)

Cooperation (working well with others)

Leadership potential (influencing others effectively)

Versatility (able to adapt to different situations)

Most candidates will have little work experience, so the recruiters need to look for evidence in the college and outside activities of the applicant. The applicants are evaluated on the list of dimensions. Recruiters also select the top two people they feel are most eligible for the management training program. Recruiters should only choose the top two once they have rated all the applicants. The training program is extremely expensive and care needs to be taken in selecting the right applicants for the positions. Then they write a 1-page letter to the top candidate persuading them to join the organization.

Now prepare your talk for the undergraduate recruiters. Imagine that you have entered the room where the undergraduate recruiters are seated. You need to give actual instructions and guidance to your followers, although you are unable to see them.

Appendix B

Situational Strength Manipulation (Instruction Set)

Strong Situation:

Constraints

During the preparation phase of the task, the research assistant will be present in the room with you to ensure you remain on task for the entirety of this phase.

Consequences

Upon completion of the task, you will receive feedback based on a scoring algorithm, generated and refined from past research, which will assess your overall leadership potential. This scoring algorithm has been tested vigorously and is highly effective and reliable in predicting leadership potential through a variety of outcomes.

Moderate Situation:

Constraints

During the preparation phase of the task, the research assistant will periodically check in on you to make sure you remain on task during this phase.

Consequences

Upon completion of the task you will receive feedback on your performance. Your overall performance will be assessed by two graduate student coders who have been trained to assess leadership performance in this task. The feedback will be centered on your public speaking skills and effectiveness in instructing.

Weak Situation:

Constraints

During the preparation phase of the task, you will be allotted **20 minutes** to prepare your instructional speech. The research assistant will leave the room during this time and return at the

end of the 20 minutes. If you finish preparing before time is up, please notify the research assistant.

Consequences

Upon completion of the task you will not be able to receive feedback on your performance as this is a novel leadership assessment task with a scoring system that is still undergoing validation.

Appendix C

Leadership Self-Efficacy

Ng, Ang, & Chan (2008). *Journal of Applied Psychology*, 93, 733-743

Please use the scale below and rate how confident you are in the following aspects of leadership:

1-----2-----3-----4-----5-----6-----7
 Not at all confident Extremely confident

- | | |
|-----------------------------------|---------------------------------|
| 1. Planning ability | 1----2----3----4----5----6----7 |
| 2. Setting direction | 1----2----3----4----5----6----7 |
| 3. Delegating and assigning tasks | 1----2----3----4----5----6----7 |
| 4. Coordinating tasks | 1----2----3----4----5----6----7 |
| 5. Ability to communicate | 1----2----3----4----5----6----7 |
| 6. Leading by example | 1----2----3----4----5----6----7 |

7. Ability to motivate others 1-----2-----3-----4-----5-----6-----7
8. Creating team spirit 1-----2-----3-----4-----5-----6-----7
9. Using rewards and punishments 1-----2-----3-----4-----5-----6-----7
10. Confidence to lead a team 1-----2-----3-----4-----5-----6-----7
11. Overall leadership effectiveness 1-----2-----3-----4-----5-----6-----7

Appendix D**Primary Appraisal Secondary Appraisal (PASA) [Adapted from Gaab (2005) and Roesch & Rowley (2005)]***Threat:*

- 1) I do not feel threatened by the task
- 2) I find this situation very unpleasant
- 3) This situation scares me

Challenge:

- 1) I feel I can learn and become stronger after experiencing this task (Newly created)
- 2) I am eager to tackle this task (Roesch & Rowley, 2005)
- 3) I am excited about the potential outcome of this task (Roesch & Rowley, 2005)

Appendix E**Speech Topic Checklist**

Below are the statements/instructions from the document that participants should mention within their speech.

- 1) Your name is Pat Jackson
- 2) Amidex is a multinational organization that manufactures and distributes pharmaceuticals
- 3) . Amidex has announced openings for college graduates in its management training program
- 4) Amidex is seeking high potential graduates
- 5) Any major is appropriate because the training program will be tailored to the interests, aptitude, and work experience of each trainee.
- 6) Applicants should have excellent academic achievement records
- 7) they (Amidex) wish to retain a more diverse workforce by recruiting individuals who have demonstrated competency across a wide range of areas
- 8) Organizations that value diversity are more innovative than their conservative competitors.
- 9) You joined Amidex 5 years ago
- 10) You joined the organization through its management training program
- 11) Without that training you would not have gained such an early promotion
- 12) Followers will be given a set of 12 resumes
- 13) They must write a short letter to their top applicant persuading them to join the organization
- 14) They have 20 minutes to complete the task
- 15) The resumes are from undergraduate students from other universities
- 16) The primary concern should be to hire employees whose background suggests they will be effective managers
- 17) Followers should provide comments on how the applicant fits or does not fit the dimension. The evaluation sheet contains ratings (on a 1 –7scale)
- 18) Followers also need to provide a general evaluation of the candidate.

- 19) (List of characteristics 19-23)Willingness to work hard (going beyond the minimum required)
- 20) Innovation (looks for new challenges)
- 21) Cooperation (working well with others)
- 22) Leadership potential (influencing others effectively)
- 23) Versatility (able to adapt to different situations)
- 24) Followers need to look for evidence in the college and outside activities of the applicant
- 25) Must select the top two people they feel are most eligible
- 26) Must only choose the top two once they have rated all the applicants
- 27) Then they write a 1-page letter to the top candidate persuading them to join the organization.

Appendix F

Situational Strength Questionnaire

Situational Strength Dimensions

Think about the task scenario as a whole (instructional packet & preparation phase). Situations each present different cues that encourage or discourage certain behaviors. The extent of how obvious and strong these cues are is a concept called situational strength. For example, in a classroom the situational cues for what is appropriate behavior are obvious and interpreted the same way by almost everyone, therefore you see very little difference in behavior between people in a classroom. However, at a football game, the situational cues are weaker and interpreted differently by individuals. So you see quite a wide-array of behavior at a football game, from fans sitting quietly watching the game to face-painted students yelling loudly.

*Situational strength can be thought of in terms of 4 dimension, clarity, consistency, constraints, and consequences pertaining to the desired behavior. Please rate your task scenario using the following scale on **each** of the following situational strength dimensions:*

1-----2-----3-----4-----5-----6-----7
Very Weak Very Strong

1) **Clarity**

- a) Clarity, is as the extent to which cues providing information regarding the specific behaviors that are expected from employees on a task. In other words, how available was the information for **what** you were supposed to during the task.

1-----2-----3-----4-----5-----6-----7

2) **Consistency**

- a) Consistency, is defined here as the extent to which cues regarding responsibilities or requirements are compatible with each other. This pertains to how well the instructions and requirements matched throughout the course of the task and did not present conflicting requirements of **what you were to do** during the task at different points in time.

1-----2-----3-----4-----5-----6-----7

3) **Constraints**

- a) Constraints, is defined here as the extent to which an individual's behavior limited by forces outside his or her control. Constraints limit an individual's ability to address the

task in the manner in which they choose. In other words, constraints pertain to limits to your personal freedom on **HOW** you were able complete the task.

1-----2-----3-----4-----5-----6-----7

4) **Consequences**

- a) Consequences, is defined here as the extent to which your actions and performance have important positive or negative implications for the individual involved. Specifically, think about consequences related to your leadership performance and feedback on the task.

1-----2-----3-----4-----5-----6-----7