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**APPRAISING OPPORTUNITIES TO BETTER UNDERSTAND WELL-BEING AND
PERFORMANCE IN THE ORGANIZATIONAL SCIENCES**

A Dissertation Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Michael Paul Lerman

May 2019

DEDICATION

This work is dedicated to my late brother, David Lerman.

ACKNOWLEDGEMENTS

Not everyone is afforded the opportunities that have been provided to me. Thus, I'd like to thank some, but certainly not all, of the people in my life who helped me realize the rewarding opportunity of working towards a PhD. First, I would like to thank my dissertation chairs. Without Dave Williams and Tim Munyon, there is absolutely no way I would have completed the PhD. Dave introduced me to the entrepreneurial division, which has turned out to be a real home for me. He is also a true professional and friend: he has guided me through countless dilemmas in my early career, is *always* available to help, and has a great meme game. He truly is Mr. Incredible! Everything I said about Dave equally applies to Tim, except that Tim is not a doppelganger of a superhero. Tim gave me the confidence to pursue research in what I was passionate about, and even after writing a full dissertation on the topic, Tim is still more knowledgeable on it than I am. I could go on and on about Tim's excellence as a researcher and colleague, but I would be remiss to not mention the tremendous respect I have for him as a person. In every course of action, Tim demonstrates a sense of community and care for others that is hard to describe and difficult to find. He also has coached me on avoiding research disputes with the great researchers in our field, and my career prospects are very thankful for that!

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ABSTRACT

Despite a strong base of literature that shows appraisal (i.e., an individual's assessment of the relevance of a possibly stressful situation to their own goals and their likelihood of effectively coping with it) is an important predictor of individual emotion, behavior, and performance, appraisal has been largely relegated to theory by the organizational sciences. The purpose of this work is to demonstrate why studying appraisal adds value to organizational science phenomena. This is accomplished through two empirical essays and a theory essay. First, a meta-analysis assesses the extent to which the challenge-hindrance framework, a perspective that explicitly suggests appraisal is unnecessary to understanding the effects of stressors (i.e., source of stress), applies to the context of entrepreneurship, where it is contended appraisal is most likely to play a role. Findings suggest that although the framework does apply, entrepreneurs (who operate in a more autonomous environment) experience better well-being and performance outcomes than non-entrepreneurs (who operate in more restrictive environments), and it is argued that appraisal is likely a factor in this difference. Second, a diary study tracks entrepreneurs' daily appraisal, mood, and coping across a 20-day period in response to their self-identified largest source of stress. Results conclude that daily appraisal, which varies across time, directly affects daily mood and indirectly affects daily coping through mood, thus showing that appraisal predicts two important health indicators for entrepreneurs. Third, a theory on collective appraisal (i.e., the extent to which team members agree concerning which stressors are relevant to the team and how to respond to those stressors) is developed which turns appraisal from an individual-level construct to a team-level one. In so doing, the essay makes appraisal more useful to organizational science phenomena, which predominantly occur in team settings.

TABLE OF CONTENTS

INTRODUCTION TO DISSERTATION	1
CHAPTER 1 A META-ANALYSIS AND REVIEW OF ENTREPRENEURIAL STRESS: APPRAISING OPPORTUNITIES FOR STRONGER THEORETICAL INTEGRATION.....	4
ABSTRACT.....	5
INTRODUCTION	6
THE ENTREPRENEURIAL STRESS LITERATURE.....	9
Stressors are Negative.....	10
Stressors are Positive	11
Stressors Require a Tradeoff.....	12
THE CHALLENGE-HINDRANCE FRAMEWORK.....	13
Overview.....	13
Empirical Support	13
HYPOTHESES	15
Challenge Stressors Influence on Entrepreneurs and Their Ventures	15
Hindrance Stressors Influence on Entrepreneurs and Their Ventures	20
METHODS	23
Literature Search and Sample	23
Results.....	28
Post Hoc Analyses	29
DISCUSSION.....	34
REFERENCES	37
APPENDIX A.....	44
CHAPTER 2 APPRAISING, FEELING, AND COPING: HOW DAY-LEVEL STRESSOR APPRAISALS INFLUENCE ENTREPRENEUR AFFECT AND COPING STRATEGIES.....	55
ABSTRACT.....	56
INTRODUCTION	57
THEORETICAL FOUNDATIONS	60
The Value of Appraisal.....	60
The Transactional Model of Stress	61
HYPOTHESES	63
Variation in Appraisal.....	63
Challenge Appraisal.....	65

Hindrance Appraisal	66
METHODS	67
Sample.....	68
Data Collection	69
Measures	70
Analytical Approach	71
Test of Hypothesis 1	73
Test of the Main Effect Hypotheses.....	74
Test of the Indirect Effect Hypotheses.....	75
Comparison of Proposed and Alternative Models	75
DISCUSSION.....	78
Theoretical Implications	78
Future Directions	80
Practical Implications.....	83
Conclusion	84
REFERENCES	85
APPENDIX B.....	94
APPENDIX C.....	100
CHAPTER 3 INCREASING THE UTILITY OF APPRAISAL TO THE ORGANIZATIONAL SCIENCES: AN INTRODUCTION OF COLLECTIVE APPRIASAL	101
ABSTRACT.....	102
INTRODUCTION	103
TEAM APPRAISAL: AN ORIGIN STORY	104
Individual-Level Appraisal Within the CATS.....	105
The Content of Collective Appraisal	109
THE EFFECTS OF COLLECTIVE APPRAISAL SEPARATION ON TEAM EFFECTIVENESS.....	111
Short-Term Effects of Collective Appraisal Separation	112
Long-Term Effects of Collective Appraisal Separation	116
Contextual Differences Between OTs, TMTs, and NVTs.....	122
DISCUSSION.....	134
Appraisal: From Psychological to Sociological.....	135
Clarifying Team Conflict.....	136

Collective Appraisals Distinction from and Utility in Studying Other Team Constructs ..	138
Leadership Through A Collective Appraisal Lens	140
Closing	142
REFERENCES	143
APPENDIX D.....	158
DISCUSSION OF DISSERTATION	160
The Challenge-Hindrancel Framework: Useful but Limited	160
Collective Appraisal is Foundational to Organizational Science Phenomena.....	162
Challenges and Future Research Opportunities	163
The Practical Utility of Appraisal: Avoiding Pitfalls	165
VITA.....	168

LIST OF TABLES

Table 1: Articles Measuring Challenge Stressor Outcomes	44
Table 2: Articles Measuring Hindrance Stressor Outcomes	47
Table 3: Meta-Analytic Results for the Relationships between Stressors and Outcomes	51
Table 4: Meta-Analytic Comparison of Entrepreneurs and Employees	52
Table 5: Meta-Analytic Comparison of Entrepreneur Job and Organizational Performance	53
Table 6: Credibility Intervals for Meta-Analytic Results	54
Table 7: Construct Descriptive Statistics and Correlations	94
Table 8: Summary of Model Fit Indices	95
Table 9: Differentiating Appraisal from Other Team Constructs	159

LIST OF FIGURES

Figure 1: Conceptual Model 96
Figure 2: Appraisal as Antecedent 97
Figure 3: Affect as Antecedent 98
Figure 4: Coping as Antecedent..... 99
Figure 5: Model of Collective Appraisal 158

INTRODUCTION TO DISSERTATION

“Although the examination of objective work stressors may be useful to broadly predict employee strain, the focus is entirely too limiting. In order to truly understand the components of the stress process, the primary focus should be on how individuals interpret objective conditions rather than simply relating stressors to strains.” - Perrewé & Zellars, 1999: p. 740

Despite a strong base of literature that shows appraisal (i.e., an individual’s assessment of the relevance of a possibly stressful situation to their own goals and their likelihood of effectively coping with it) is an important predictor of individual emotion, behavior, and performance, the influences of appraisal have been largely assumed in the organizational science literature, rather than tested (e.g., LePine, Podsakoff, & LePine, 2005). Because of the important theoretical role of appraisal in behavioral responses to stressors (i.e., sources of stress; Lazarus & Folkman, 1984), and the importance of behavior for performance outcomes (e.g., Heath & Sitkin, 2001), existing understanding of organizational phenomena is incomplete without accounting for appraisal. The purpose of this work is to demonstrate why studying appraisal adds value to organizational science phenomena. This is accomplished through two empirical essays and a theory essay.

First, a meta-analysis assesses the extent to which the challenge-hindrane framework, a perspective that explicitly suggests appraisal is unnecessary to understanding the effects of stressors (i.e., source of stress), applies to the context of entrepreneurship, where it is contended appraisal is most likely to play a role. A meta-analysis involves the collection of studies relevant to a specific set of relationships, the calculation of sample-weighted correlations between the relationships of interest, and the correction for measurement error due to unreliability of measures, in order to obtain an estimate of the population effect size. It is useful for testing

theory, clarifying ambiguous findings, and providing direction for future research (Hunter & Schmidt, 2004). A quantitative review of the effect of stressors on entrepreneur well-being and performance is both timely and important. It is timely because researchers have sought to understand stress processes in entrepreneurship for over 30 years (Boyd & Gumpert, 1983) and have amassed enough literature to test its overarching findings. It is important because existing findings are ambiguous: it is unclear what effect stressors have on well-being and performance because effects have been conflicting across studies. Findings suggest that although the framework does apply, entrepreneurs (who operate in a more autonomous environment) experience better well-being and performance outcomes than non-entrepreneurs (who operate in more restrictive environments), and it is argued that appraisal is likely a factor in this difference.

Second, a diary study tracks entrepreneurs' daily appraisal, mood, and coping across a 20-day period in response to their self-identified largest source of stress. A daily diary study involves end-of-day surveys of the occurrences within that day over a theoretically meaningful period of days. This type of approach is advantageous because it reduces recall bias and establishes ecological validity (Shiffman, Stone, & Hufford, 2008), which is theoretically meaningful in understanding stress processes generally and stress appraisal specifically (Jex, 1998). Such a study is necessary because it is currently unclear how entrepreneur stress unfolds over time and because it can provide additional evidence to understand the results from the meta-analysis in Essay 1. Specifically, the meta-analytic results suggest that the challenge-hindrance framework operates differently in entrepreneurial contexts than in non-entrepreneurial ones. Understanding the role of appraisal in entrepreneur stress processes could help to clarify that difference. Results conclude that daily appraisal, which varies across time, directly affects daily

mood and indirectly affects daily coping through mood, thus showing that appraisal predicts two important health indicators for entrepreneurs.

Third, a theory on collective appraisal (i.e., the extent to which team members agree concerning which stressors are relevant to the team and how to respond to those stressors) is developed which turns appraisal from an individual-level construct to a team-level construct. The theory borrows concepts from the Cognitive Activation Theory of Stress (Meurs & Perrewé, 2011; Ursin & Eriksen, 2004) to develop a dynamic model of collective appraisal and its influence on team functioning. Specifically, short-term and long-term effects of low collective appraisal are theorized; following this, contextual differences between occupational teams, top management teams, and new ventures teams are discussed. The essay contributes to existing appraisal literature by opening the door for sociological theories to contribute to appraisal research. Along these lines, I discuss specific opportunities to integrate appraisal in team conflict, related psychological team constructs, and leadership domains. In so doing, the essay makes appraisal more useful to organizational science phenomena, which predominantly occur in team settings.

Together, this dissertation seeks to demonstrate three important contributions: First, that appraisal is important to valued entrepreneurship outcomes and should be considered an important avenue for helping entrepreneurs to build successful ventures while maintaining their own well-being. Second, that there are deficiencies in our measurement of stress if we do not measure appraisal; specifically, failure to account for variations in appraisal over time leads to imprecise understandings of health, which is similarly dynamic based on appraisal. Finally, capturing appraisal at the team level is not only possible but would greatly enhance our understanding of organizational science phenomena.

CHAPTER 1

A META-ANALYSIS AND REVIEW OF ENTREPRENEURIAL STRESS: APPRAISING OPPORTUNITIES FOR STRONGER THEORETICAL INTEGRATION

ABSTRACT

The purpose of this paper is to test the generalizability of the challenge-hindrance framework (LePine, Podsakoff, & LePine, 2005) to an entrepreneurial setting, which is arguably a context where cognitive appraisal should play a large role in determining stress outcomes. If the framework is applicable to entrepreneurs, it may imply that recent critiques of appraisal are warranted and that the challenge-hindrance framework is a suitable path forward for better understanding organizational stress. To assess if it does, we employ a quantitative review of prior work on the relationships between stressors and entrepreneur health and wealth. Our search results in a final sample of 32 studies reporting 62 correlations between relationships of interest. We use random effects meta-analysis to derive our results (Hunter & Schmidt, 2004), and compare findings to a similar study on non-entrepreneurs (LePine, Podsakoff, & LePine, 2005). Initial results suggest that it is the *type* of stressor that matters. Challenge stressors are positively related with venture performance, emotional well-being, and life satisfaction, while hindering physiological well-being. Conversely, hindrance stressors have no significant effect on venture performance but are negatively related with each facet of well-being. We contribute to entrepreneurship research by better specifying the effects of stressors on entrepreneurs. Specifically, the challenge-hindrance framework can be applied to understand entrepreneur outcomes. Yet, stressors affect facets of well-being in different ways, implying the need for more nuanced perspectives than ‘this is good, this is bad’ to further understand entrepreneurial well-being. We contribute to the stress literature by showing that entrepreneurs (who operate in weak contexts) experience different effects from stressors than do non-entrepreneurs (who operate in strong contexts). In short, stressors are more straining on employees and more damaging to performance. Thus, creating more entrepreneurial environments for employees may help alleviate stress.

INTRODUCTION

Stress, a “process by which workplace psychological experiences and demands (stressors) produce both short-term (strains) and long-term changes” (Ganster & Rosen, 2013, p. 1088), has important implications for individuals and the organizations in which they work. For this reason, there is an abundance of literature that has explored stress in the organizational sciences. Specifically, there has been enough quantitative evidence to support 18 quantitative and 1 qualitative review on stress-related phenomena (Mazzola, Schonfeld, & Spector, 2011). The efforts of so many scholars over such an extended period have properly positioned stress as one of the most important workplace phenomena (Staw, 1984).

Each meta-analytic investigation has been developed under a theoretical framework. Although there are many theories, appraisal theory, conservation of resources, and job demands-control are arguably the most prevalently applied theories. Indeed, many scholars agree that appraisal, an individual’s interpretation of a potential source of stress, is a reliable predictor of individual reactions to stressors, hence determining the extent to which someone is ‘stressed’ or not (Cooper, Dewe, & O’Driscoll, 2001; Meurs & Perrewé, 2011). However, appraisal has come under substantial criticism and scrutiny of late. For example, in their review of the conservation of resources framework, Hobfoll, Halbesleben, Neveu, and Westman (2018) take a strong stance against the utility of stress appraisal frameworks, “arguing that stress is that which is appraised as stressful is classist, sexist, and racist” (p. 2). Additional theory has also called in question the utility of appraisals in stress processes. For example, the challenge-hindrance framework proposes that since workplace environments are economically similar across occupations, categorizing stressors as inherently challenging or hindering is a reasonable alternative to measuring how people appraise stressors (Brief & George, 1995). In other words, this framework

assumes stressors are objectively stressful in ‘positive’ ways (*challenge stressors*) or ‘negative’ ways (*hindrance stressors*). Further, after factor-analytic evidence that organizational stressors may be separated into challenge and hindrance categories (Boswell, Olson-Buchanan, & LePine, 2004; Cavanaugh, Boswell, Roehling, & Boudreau, 2000), three quantitative reviews supported the predictions of the challenge-hindrance framework (i.e., Crawford, LePine & Rich, 2010; LePine, Podsakoff, & Lepine, 2005; Podsakoff, LePine, & LePine, 2007). In sum, recent organizational science literature has taken a firm stance against appraisal.

Each of these critiques has some degree of merit. Toward the point of Hobfoll and colleagues (2018), appraisal could be applied in harmful ways by unscrupulous managers. Further, as Brief and George (1995) proposed, the strong meta-analytic support for the challenge-hindrance framework supports the premise that we can understand at least some work-related stress processes without appraisal. Similarly, there is a lack of theoretical convergence in appraisal theory that impedes inquiry into and understanding of its mechanics (for a full review, see Fernando, Kashima, & Laham, 2017). Finally, appraisal occurs when an individual encounters a stressor, necessitating rigorous empirical investigations that provide strong ecological validity, such as experience sampling methods combined with qualitative interviews or experiments. Thus, given these challenges, it is evident that many organizational scholars have sought alternative approaches to the study of work-related stress.

However, is the study of appraisal “case closed,” or are there environments in which appraisal may yet shed important light on the study of work-related stress? In this investigation, we test the generalizability of the challenge-hindrance framework in an extreme context of entrepreneurship. Specifically, we conduct a quantitative review of the effects of stressors on entrepreneur well-being and performance. Several features of entrepreneurship make this test

important. First, entrepreneurs generally work in environments marked by greater uncertainty and dynamism than other groups typically studied in the organizational sciences (e.g., employees in mature organizations, managers, top managers, and CEO's). This has justly resulted in entrepreneurship being described as a characteristically weak environment, meaning that when we study entrepreneurs, we are more likely to find differences across individuals in the way they respond to objective situations (Klotz, Hmieleski, Bradley, & Busenitz, 2014). Put more bluntly, if appraisal plays a role in the stress process, it is most likely to be influential in entrepreneurial contexts. Thus, this assumption provides an important extension and test of the generalizability of the challenge-hindrance framework. If the assumptions of the challenge-hindrance framework do not apply to entrepreneurs, then its continued application will further cloud our understanding both of work stressors in general and entrepreneurial stress. However, if the challenge-hindrance framework is applicable to entrepreneurship, then mechanisms such as appraisal may be important avenues for further exploration.

Consequently, a quantitative review of the effect of stressors on entrepreneur well-being and performance is both timely and important. It is timely because researchers have sought to understand stress processes in entrepreneurship for over 30 years (Boyd & Gumpert, 1983) and have amassed enough literature to test its overarching findings. It is important because existing findings are ambiguous: it is unclear what effect stressors have on well-being and performance because effects have been conflicting across studies. Fortunately, a quantitative review can resolve ambiguous findings by providing an estimate of the population effect size for relationships of interest (Hunter & Schmidt, 2004).

We seek to make at least three contributions in this quantitative review. First, we test the generalizability of the challenge-hindrance framework in the extreme environment of

entrepreneurship. We find that the framework does apply to entrepreneurs: challenge stressors have different effects on entrepreneurs than do hindrance stressors, and these differences are in accordance with theoretical predictions. Second, we compare our findings to LePine et al's (2005) meta-analysis of non-entrepreneurs to show conclusively that entrepreneurs experience effects that are tangibly better in terms of well-being and performance than do non-entrepreneurs. In line with this, we find significant Q-statistics for several tested effects, implying moderators in the relationships between stressors and well-being and performance outcomes. These findings suggest that there are mechanisms at play other than the challenge-hindrance framework that explain differences between entrepreneurs (that operate in a weak context) and non-entrepreneurs (that operate in a strong context) and differences across entrepreneurs. Based on these findings, we argue that one mechanism is almost certainly appraisal. Third, we test five different facets of entrepreneur well-being, finding differential effects of stressors on each of them, providing greater precision regarding the effects of stressors and an explanation for existing diversity in findings.

THE ENTREPRENEURIAL STRESS LITERATURE

As described above, the entrepreneurial stress literature has conflicting findings in terms of the influence of stressors on entrepreneur well-being and performance. Some literature suggests that stressors are negative, others propose that stressors are positive, and a few propose that stressors necessitate tradeoffs of different outcomes. We review this literature below to highlight the necessity for clarification through a quantitative review. Although we cite additional work in this review, Table 1 and 2 below provides relationships and correlations from studies included in our meta-analytic tests.

Insert Tables 1 and 2 about here

Stressors are Negative

There is evidence that stressors generally have negative implications for entrepreneurs and their ventures. First, Lewin-Epstein and Yuchtman-Yaar (1991) suggest that entrepreneurs experience worse health than non-entrepreneurs because the uncertainty and threat of loss inherent within an entrepreneurial career promote unhealthy life-styles and behaviors. This is supported by empirical and qualitative work suggesting entrepreneurs generally respond to stress by making a variety of personal sacrifices and allowing their ventures to dominate their life (Boyd & Gumpert, 1983). However, this evidence may also be impacted by contextual factors not accommodated in this study's primary theorizing. For example, a qualitative study of Korean immigrant entrepreneurs found that participants were forced to operate in low-income areas that subject them to armed robberies, shoplifting, strikes, and boycotts, thus often requiring them to work in excess of 60 hours a week (Min, 1990). Therefore, the magnitude of experienced stress had arguably as much to do with their work stressors as the stressful community environment in which they were working.

Second, the uncertainty that accompanies firm decisions and the fulfillment of entrepreneurial roles has also been argued to have negative influences on entrepreneurs and their ventures. For example, entrepreneurs face *paradoxical tensions*, competing demands for their time and for the direction of the firm (e.g., embracing founding traditions that made the firm successful, while also looking for new opportunities; Ingram, Lewis, Barton, & Gartner, 2016). In addition, *work-family conflict* (i.e., work demands pulling resources from the family domain) and *family-work conflict* (i.e., family demands pulling resources from the work domain) are

highly prevalent for entrepreneurs and their families (e.g. Parasuraman & Simmers, 2001; Stewart & Danes, 2001; Stoner, Hartman, & Arora, 1990), forcing them to balance competing demands from each domain. Finally, entrepreneurs experience *role ambiguity*, “a perception of insufficient information with respect to priority, expectations, and evaluation criteria from stakeholders” (Wincent & Ortqvist, 2009; p. 227). Multiple theories (e.g., paradox theory, Lewis, 2000; the sustainable family business model, Danes, Rueter, Kwon, & Doherty, 2002; and role theory, Kahn et al., 1964) concord in their characterization of stressors as a negative influence on entrepreneurs and their ventures.

Stressors are Positive

There is also evidence that stressors have positive implications for both entrepreneurs and ventures. For example, demands in the form of working hours tends to be positively associated with performance (Cardon & Patel, 2015; Fasci & Valdez, 1998)¹. In addition, experiencing stressors that promote growth and goal-attainment are positive for venture performance (Kariv, 2008). Finally, the problem-solving demands of entrepreneurship reduce anxiety and depression for entrepreneurs (Totterdell, Wood, & Wall, 2006). These stressors are generally conceived as positive in broader theory and empirical findings as well (Lazarus, 2001; LePine et al., 2005), and hence it is not surprising to find these results in entrepreneurship.

However, there have been some counterintuitive findings regarding the positive impact of stressors. For example, Paul, Winter, Miller, & Fitzgerald (2003) find that family-work conflict is positively associated to performance. This suggests that entrepreneurs can benefit from a stressor that is typically purported to be bad, family-work conflict, possibly because

¹ For clarity, we discuss effects of stressors in a linear fashion. However, note that any stressor experienced for too long or in too great a severity (e.g., see Selye, 1976; Ursin & Eriksen; 2004) is likely to impinge on one’s health.

entrepreneurial ventures benefit when the entrepreneur steps away and maintains a personal life. In addition, interpersonal conflict has been tied to increased performance; this may occur because sometimes conflict can be beneficial to entrepreneurial ventures (Klotz, Hmieleski et al., 2014). Finally, prior firm failure is positively associated to well-being (Jenkins, Wiklund, & Brundin, 2014); this may be because entrepreneurs learn to re-appraise the failure event over time, thus coming to terms with, and growing from, the situation (Lazarus, 2001).

Stressors Require a Tradeoff

Finally, many scholars have proposed that stress requires a tradeoff between an entrepreneur's well-being and their venture's performance. Indeed, Cardon and Patel (2015) find that stress, in general, promotes venture performance while hindering an entrepreneur's well-being. Notably, there may be time tradeoffs associated with this exchange: entrepreneurs may sacrifice short-term well-being to achieve sustained venture performance, with the idea of stepping away from the venture later and thus experience greater well-being in the long-term (Hobfoll, 1989). Nonetheless, similar tradeoffs have been found when considering the influence of specific stressors. For example, although entrepreneurs appear to re-appraise firm failures as positive experiences, they are less capable of viewing the financial loss as a learning experience (Jenkins et al., 2014).

Thus, existing literature has provided diverse results: some suggest stress is negative, some suggest it is positive, and yet others argue the stress requires a trade-off. One reason for the existing diversity in perspectives and empirical findings could be that it is the type of stressor that produces positive or negative outcomes. An ideal framework for testing this assertion is the challenge-hindrane framework (LePine, LePine, & Jackson, 2004). Thus, we outline the framework below.

THE CHALLENGE-HINDRANCE FRAMEWORK

Overview

The challenge-hindrane framework (LePine et al., 2004) may prove helpful in reconciling the diversity of evidence on stressor outcomes in entrepreneurship. The framework was designed specifically to understand the role of organizational stressors on outcomes such as performance and well-being (Boswell et al., 2004; LePine et al., 2005). It posits that *challenge stressors*, defined as demands perceived as obstacles that promote positive outcomes such as learning and achievement, facilitate better performance by motivating individuals to engage effectively with stress (LePine et al., 2005). Still, since challenge stressors require deployment of individual resources, they can reduce some forms of well-being (LePine et al., 2005). Conversely, the challenge-hindrane framework suggests that *hindrance stressors*, defined as demands perceived as threatening to personal growth and goals, are negatively associated with both performance and well-being.

This two-dimensional work stressor framework contends that organizational contexts have similar economic meaning for everyone (Brief & George, 1995), and thus there is insignificant variation across individuals in interpreting similar stressors. Thus, the challenge-hindrane framework posits that organizational stressors can be defined *a priori* as enhancing or destructive to performance. As such, proponents of this framework dub certain stressors challenge stressors (e.g. job demands, pressure, time urgency) and others hindrance stressors (e.g. constraints, hassles, resource inadequacy, role ambiguity).

Empirical Support

After factor-analytic evidence that organizational stressors may be separated into challenge and hindrance categories (Boswell et al., 2004; Cavanaugh et al., 2000), three meta-

analytic results provided supporting evidence for the challenge-hindrance framework. First, LePine et al., (2005) find that challenge stressors have a positive direct relationship to performance, while also having offsetting indirect effects by increasing strain (which subsequently decreases performance) and increasing motivation (with subsequently increases performance). Second, Podsakoff et al., (2007) reveal that challenge stressors have positive relationships to job satisfaction and organizational commitment, and negative relationships with turnover intentions and turnover; meanwhile, hindrance stressors have the opposite effect. Third, Crawford et al., (2010) apply the challenge-hindrance framework to the job demands-resources model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), revealing that demands can also be categorized into challenge or hindrance components. Specifically, hindrance job demands require more resources to maintain homeostasis than do challenge job demands, thus requiring more job resources to avoid stress (Crawford et al., 2010).

Other research has sought to test the challenge-hindrance framework in a variety of different organizational settings (see LePine, Zhang, Crawford, & Rich, 2016; Pearsall, Ellis, & Stein, 2009; Wallace, et al., 2009; Webster, Beehr, & Christiansen, 2010). For the most part, these findings consistently support the challenge-hindrance framework. Specifically, challenge stressors tend to benefit performance, but still produce psychological strain as individuals cope with the stressor (Webster et al., 2010). Hindrance stressors tend to produce larger positive effects on psychological strain, but also have a negative relationship with performance (Webster et al., 2010). In sum, there is evidence supporting the utility of the challenge-hindrance stressor framework, and we thus use it to theorize the effects of stressors on entrepreneur performance and well-being.

HYPOTHESES

We contend that the challenge-hindrane framework is an ideal way to categorize conflicting results in existing entrepreneurship literature. However, we are also interested in understanding if the framework applies in the weak context of entrepreneurship in similar fashions as it does in stronger contexts (Klotz et al., 2014; Mischel, 1977). To appropriately test the challenge-hindrane framework, we proceed by theorizing reasons why it may apply to entrepreneurs as opposed to theorizing reasons why it may not.

Challenge Stressors Influence on Entrepreneurs and Their Ventures

The two-dimensional challenge-hindrane framework posits that the *type* of stressor (challenge or hindrance) predicts variance in stress outcomes (LePine et al., 2005). The primary reason to emphasize the type of stressor is that individuals are likely to react to, or, *appraise*, different types of stressors in different ways. Specifically, the challenge-hindrane framework proposes that challenge stressors are *appraised* as opportunities², as opposed to threats, and that this is associated with certain responses. Appraisals, which determine an individual's assessment of a stressor's relation to themselves, are associated with specific emotional and behavioral reactions to stress (Folkman et al., 1986; Lazarus & Folkman, 1984). Stressors deemed highly relevant, goal congruent, and within one's control tend to be appraised as opportunities (Lazarus, 2001).

In entrepreneurship, challenge stressors (e.g., working hours, problem-solving demands; Cardon & Patel, 2015; Nguyen & Sawang, 2016) abound. They are theoretically associated with higher venture performance because they motivate active behavior towards entrepreneurially

² Please note that Lazarus' appraisal theory (e.g., see Lazarus & Folkman, 1984) uses the terms challenge and threat appraisals; we refer to challenge appraisals as opportunity appraisals here to avoid confusion between 'challenge appraisals' and 'challenge stressors', which are theoretically different concepts.

relevant goals (Lazarus, 1993). First, challenge stressors require effort and time but are also largely under the control of the entrepreneur (Lazarus & Folkman, 1984). For example, solving problems (Totterdell et al., 2006) requires an investment of time and resources, and entrepreneurial contexts offer great flexibility in handling them (Baron, 2010). Challenge stressors, because of their goal relevance and high control for achieving a positive outcome, elicit a near-immediate positive emotional response (Lazarus, 1993), which provides motivational content to actively engage with stressors, and signals the existence of enough resources to do so (Hobfoll, 2001). Thus, challenge stressors drive motivated behavior towards building the venture.

Second, challenge stressors serve as a compass for what matters. For a stressor to be a challenge, it must first be *relevant* to something of value (e.g., the success of the venture; Lazarus, 2001). Thus, when entrepreneurs are confronted with working many hours or solving difficult problems, their coping response stems from their assessment of these stressors potential value towards the success of their venture. Since challenge stressors are opportunities for mastery, personal growth, or future gains (Lazarus & Folkman, 1984), they aid entrepreneurs by pointing their behaviors in the right direction. Thus, challenge stressors drive entrepreneurs towards those behaviors that are conducive to venture success, as opposed to behaviors which will not directly influence performance or will negatively influence it.

Challenge stressors produce positive emotions (Lazarus, 1993), which not only motivates active behavior (as discussed above), but also broadens scope of attention, allowing individuals to find better coping solutions and facilitate better outcomes (Fredrickson & Joiner, 2002). Further, challenge stressors are largely under the control of the entrepreneur. When individuals have great control in addressing challenges, they tend to achieve better outcomes (Byron,

Khazanchi, & Nazarian, 2010; Elfering et al., 2005). In sum, challenge stressors produce circumstances conducive to better performance in new ventures. Thus:

Hypothesis 1: *Challenge stressors have a positive relationship to venture performance.*

Challenge stressors theoretically influence facets of well-being differently. We start by theorizing about challenge stressors positive effects on emotional well-being (Lazarus, 1993), eudaimonic well-being, and job satisfaction (Podsakoff et al., 2007). First, challenge stressors, through opportunity appraisals, elicit immediate positive emotions (Lazarus, 1993). For example, opportunity appraisals have been tied to immediate feelings of happiness, pride, relief, hope and compassion (see Lazarus, 1991 for an expansive discussion of each). In addition to empirical validation, other theorists (Hobfoll, 2001) have agreed that appraisal (and its subsequently proposed emotional reaction) is likely the most immediate response to encountering a stressor. Challenge stressors also develop long-term emotional well-being because they indicate a sense of control and stability over one's life, thus facilitating stable positive emotions over time. This suggests that challenge stressors promote both proximal and distal emotional well-being.

Second, challenge stressors may be associated with eudaimonic well-being, which reflects a life lived-well (Wright, 2014). In other words, eudaimonic well-being is less concerned with outcomes and more concerned with the processes to achieve those outcomes. Deci and Ryan (2008), using self-determination theory, outline four fundamental components to eudaimonia: (1) pursuing goals for intrinsic, rather than extrinsic, reasons; (2) behaving autonomously; (3) mindfulness; and (4) behaving such that needs of competence, relatedness, and autonomy are achieved. It is also reflected in concepts such as acceptance of self, mastery, autonomy, engagement, hope, meaning, personal growth, relatedness, optimism, resilience, and more (Wright, 2014). Challenge stressors promote mastery over relevant goals and offer control

over coping behavior (Lazarus & Folkman, 1984). These stressors promote eudaimonic well-being for entrepreneurs, not because of the tasks themselves, but because they motivate entrepreneurs towards personally meaningful tasks. Specifically, challenge stressors motivate behavior towards the development and execution of entrepreneurial opportunities. Eudaimonia reflects living well, as characterized by one's intrinsic goals and values, and is voluntary in behavior (Deci & Ryan, 2008), which are both promoted and enhanced by challenge stressors (LePine et al., 2005).

Finally, challenge stressors promote better life satisfaction. While life satisfaction represents a broad assessment of one's life taken as a whole (Diener, 2006), sub-domains of life satisfaction, such as job, career, or family satisfaction, may influence how satisfied one is with their life (Wright, 2014). Job characteristics theory (Oldham & Hackman, 2005) provides evidence for the role of challenge stressors in developing work satisfaction. According to this framework, two relevant constructs in predicting work satisfaction include meaningfulness of work and experienced responsibility, and these are developed by tasks which are high in task identity (they lead to a visible outcome) and are highly autonomous (Oldham & Hackman, 2005). Since challenge stressors offer great control over achieving mastery towards a specific goal, they are conducive to developing satisfaction in the workplace, as evidenced by meta-analytic results from Podsakoff et al., (2007) on organizational workers. However, challenge stressors also may produce greater satisfaction at home. Specifically, the flexibility in dealing with challenge stressors may make it easier to develop synergies between the work and family interface (Eddleston & Powell, 2012). If this lessens overall demands on the family, it could lead to a happier home. In addition, we know that the results of stress (both negative *and positive*) tend to crossover to the family (Bakker, Demerouti, & Dollard, 2008; Westman, 2001); thus, if

entrepreneurs are satisfied with their venture, these positive resources become resources for the family unit, and the opposite is also true (Werbel & Danes, 2010).

Yet, challenge stressors have also been tied to increased levels of physiological and psychological strains (Boswell et al., 2004; LePine et al., 2004; LePine et al., 2005; Pearsall et al., 2009; Webster et al., 2010). First, when stressors are encountered, they initiate a physiological response (Ursin & Eriksen, 2004; e.g., fight or flight). This response is essential to preparing the individual to properly cope with the situation. Thus, even when experiencing seemingly positive challenge stressors, the process of orienting oneself towards that stressor, conceptualizing how to respond, and then engaging with the stressor, influences internal bodily processes. These processes manifest in physical symptoms such as chest pains, headaches, or anxiousness. Several research findings suggest that these are often experienced by entrepreneurs and has been associated with challenge stressors such as work hours (Cardon & Patel, 2015; Boyd & Gumpert, 1983).

Second, challenge stressors are associated with psychological strains. This is because individuals have only a limited amount of cognitive resources at their disposal (Hobfoll, 2001). Even when experiencing challenge stressors associated with personal growth, engaging with these challenges wears down the available resources. This concept applies to daily life and life in general. Entrepreneurs can only work so many hours a day while still being able to function. Eventually, cognitive resources must be replenished, or else it will become increasingly difficult to sustain workloads. This is practically reflected in the need for entrepreneurs to get adequate sleep to maintain creativity (Weinberger, Wach, Stephan, & Wegge, 2018). While some diminishment of cognitive resources is due to the natural passage of time, job demands are inherently an addition to this diminishment because they impose difficult decisions, problem

solving, and thoughtful interaction with various stakeholders. We summarize the above arguments in the following hypotheses:

Hypothesis 2: Challenge stressors have a positive relationship to entrepreneur a.) emotional well-being, b.) eudaimonic well-being, and c.) life satisfaction.

Hypothesis 2: Challenge stressors have a negative relationship to entrepreneur d.) physiological well-being and e.) psychological well-being.

Hindrance Stressors Influence on Entrepreneurs and Their Ventures

The challenge-hindrance framework argues that hindrance stressors have negative implications for performance. Specifically, it suggests that hindrance stressors are appraised as threats by entrepreneurs. Threat appraisals occur when entrepreneurs assess stressors to be highly relevant, yet goal incongruent, and not within their control (Lazarus, 2001). This initiates a near-immediate negative emotional response (Lazarus, 1993), which signals to entrepreneurs they do not have adequate resources to engage with the stressor (Hobfoll, 2001), restricts their scope of attention to a narrow set of potential coping options (Gladstein & Reilly, 1985; Staw, Sandelands, & Dutton, 1981), and reduces motivational content to engage with the source of stress (Lazarus, 1993). Thus, hindrance stressors drive entrepreneurs away from engagement with their business, potentially damaging venture performance. In addition, since hindrance stressors may be outside of entrepreneurs' control, a negative outcome may occur regardless of an entrepreneur's reactions (e.g. Min, 1990).

Entrepreneurs experience a variety of hindrance stressors; for example, role ambiguity, interpersonal conflict, and work-family conflict (Ingram et al., 2016; Jenkins et al., 2014; Werbel & Danes, 2010). These stressors all directly hinder venture performance. Role ambiguity makes

it difficult for entrepreneurs to manage their time effectively. Thus, when an entrepreneur experiences role ambiguity, they may waste time on unimportant tasks while spending less time on the tasks most necessary to drive a profitable business. Interpersonal conflict, which occurs often with employees (Boyd & Gumpert, 1983), may demoralize workers from putting forth their best efforts for the venture. Poor employee performance, of course, is associated with poor firm performance (e.g., Hansen & Wernerfelt, 1989; Maxham, Netemeyer, & Lichtenstein, 2008). Finally, work-family conflict necessitates that the entrepreneur step away from the business (Werbel & Danes, 2010). If entrepreneurs are unable to commit their full attention to the venture it may result in the failure of the firm or at least an inability to scale the venture. Entrepreneurs have often reported feeling upset, yet hopeless, about resolving these sources of stress (Boyd & Gumpert, 1983; Min, 1990). Thus, we posit that hindrance stressors have negative ramifications for an entrepreneur's venture. Therefore:

Hypothesis 3: Hindrance stressors have a negative relationship to venture performance.

Hindrance stressors have also been associated broadly with negative well-being outcomes (LePine et al., 2005; Lazarus & Folkman, 1984), and thus we argue that it will have negative relationships with all facets of well-being for entrepreneurs. First, hindrance stressors exhibit perceptions of negative outcomes combined with low control in addressing them (Lazarus & Folkman, 1984; Lazarus, 2001). As a result, hindrance stressors are appraised as threats to one's individual well-being. Threats elicit immediate negative emotions, including, but not limited to, fear, anger, shame, and guilt (Lazarus, 1993). Because hindrance stressors are associated with low control, they may make entrepreneurs subject to instability that lessens long-term emotional well-being.

Second, hindrance stressors also may influence eudaimonic well-being. Individuals experience greater feelings of a life well-lived when they have autonomy to pursue goals of intrinsic interest (Deci & Ryan, 2008). Hindrance stressors place objective constraints on this capability. For example, paradoxical tensions require entrepreneurs to choose between two pursuits that are both meaningful to them (Ingram et al., 2016). Further, hindrance stressors restrict capabilities to achieve mastery relating to goals. Thus, while entrepreneurs tend to build ventures to engage in more passionate work (Cardon, Wincent, Singh, & Drnovsek, 2009) that develops skills of interest to them, hindrance stressors reduce the time and capabilities to do so. As a result, hindrance stressors limit the extent to which entrepreneurs experience eudaimonic well-being.

Third, hindrance stressors reduce life satisfaction and its sub-domains (Boswell et al., 2004; Podsakoff et al., 2007). Since hindrance stressors offer little control over attaining mastery, they limit the ability of entrepreneurs to find satisfaction for what they do. One prominent example is interpersonal conflict. Poor employee performance, unhappy customers, and nosy investors may all be reasons for interpersonal conflict. In each case, interpersonal conflict reduces entrepreneur autonomy by focusing them on stakeholders' problems as opposed to their own interests. By addressing stakeholder concerns instead of their own, entrepreneurs experience work that is less meaningful to them (Oldham & Hackman, 2005). Other hindrance stressors, such as work-family conflict, operate similarly. Hindrance stressors are unwanted, unproductive, and distracting from an entrepreneur's primary entrepreneurial tasks. This is evidenced by findings that entrepreneurs who experience lack of autonomy enjoy their career

and job less than those who maintain autonomy (Parasuraman & Simmers, 2001).³ For these reasons, hindrance stressors limit the development of life satisfaction.

Finally, hindrance stressors reduce both physiological and psychological well-being. Since hindrance stressors are important to yet damaging to venture success, they initiate immediate negative emotional responses meant to orient entrepreneurs towards ameliorating the stressor (Lazarus, 1993). To orient oneself towards a perceived threat implies a physiological response to properly cope. However, because hindrance stressors offer little control, they oftentimes cannot be actively coped with. This is problematic for entrepreneurs, who tend to address issues head on to resolve them. Thus, as entrepreneurs are confronted with hindrance stressors, they find it exceedingly difficult to resolve the underlying issues. This imbalance between effort to cope with stressors and actual reduction of hindrance stressors wears down physiological and psychological resources over time. Thus:

Hypothesis 4: Hindrance stressors have a negative relationship to entrepreneur a.) emotional well-being, b.) eudaimonic well-being, c.) life satisfaction, d.) physiological well-being, and e.) psychological well-being.

METHODS

Literature Search and Sample

Our overarching goal was to identify all studies that examined one or more of our relationships of interest. Thus, we searched for all prior meta-analyses involving organizational stress to understand the nature and types of stressors that may exist. This resulted in 18 meta-

³ While we have argued, as supported by prior research (add citation), that entrepreneurs experience more autonomy than the average employee, we do not mean to imply that entrepreneurs *always* experience high autonomy nor that *all entrepreneurs* experience high autonomy.

analyses, which we used to develop a model-summary of prior organizational stress meta-analytic research. Finally, we used Jex's (1998) and Rosen, Chang, Djurdjevic, and Eatough's (2010) reviews of the organizational stress literature to consider additional search terms. This process resulted in the data collection strategy detailed below.

First, we did a broad search in Business Source Complete using the terms "Stress" and either "Entrepreneurship" or "Self-Employed". Second, we conducted another broad search using the term "Entrepreneurship" combined with each identified stressor from the review detailed above⁴. We then completed the same search, replacing "Entrepreneurship" with "Self-Employed". Each search included articles that had "Entrepreneurship" (or "Self-Employed") and one of the stressors anywhere in the article's text. Each article was then reviewed, and all potentially relevant articles were downloaded for coding. Third, we did a targeted search within *Academy of Management Journal*, *Administrative Science Quarterly*, *Entrepreneurship Theory & Practice*, *Journal of Applied Psychology*, *Journal of Business Venturing*, *Journal of Management*, *Journal of Management Studies*, *Management Science*, *Organization Science*, *Personnel Psychology*, and *Work & Stress*, looking for articles that included "stress" and "entrepreneur" in any part of the text. Fourth, we reviewed all citations from recent literature reviews on entrepreneur well-being (Kokila & Subashini, 2016; Stephan, 2018). To address Rosenthal's (1979) assertion about the potential file drawer problem (i.e., where paper's with insignificant findings are thrown into the 'file drawer' instead of published), we also scanned conference proceedings (Academy of Management, Babson Frontiers of Entrepreneurship

⁴ Specifically, stressors searched for included: job demands, pressure, time urgency, workload, constraints, hassles, resource inadequacy, role ambiguity, role conflict, interpersonal conflict, role dissensus, role interference, role strain, role clarity, role overload, supervisor stress, organizational politics, job insecurity, work-family conflict, family-work conflict, environmental uncertainty, experienced incivility, organizational support, procedural justice, distributive justice, work hours, control, competition, and responsibility.

Research, and Society for Industrial and Organizational Psychology) and dissertations. This search, which reflects publications until the end of 2018⁵, resulted in a total potential pool of 1613 studies.

We then reviewed the studies based on whether a study reported both a sample size along with a correlation between our constructs of interest (e.g., a stressor and performance or a stressor and well-being). This narrowed the pool to 32 articles for inclusion in the meta-analysis. The large reduction resulted from several reasons. First, some studies mentioned stress out of context (e.g., “[they] stressed that...”, D’Annunzio-Green & Francis, 2005: p. 353). Second, some were review pieces (Kokila & Subashini, 2016; Stephan, 2018). Third, some studies were considering the outcomes of prior firm failure, raising potential causality concerns for the purposes of our analysis (e.g., Jenkins et al., 2014). Fourth, some studies were examining stress but did not appear to account for any specific *stressor* (e.g., Paul et al., 2003). Fifth, Pollack, Vanepps, and Hayes (2012) explore *economic stress*, which we felt was too similar to performance for inclusion as a stressor in our analysis. They do not include another stress-related measure. Sixth, some studies examined *perceived stress* using the 10-item perceived stress scale developed by Cohen, Kamarck, and Mermelstein (1983); i.e., Baron, Franklin, & Hmieleski (2016) and Kibler et al., In Press). Our concern with this scale is that the items mix components of stressors (e.g., “How often have you been upset because of something that happened unexpectedly”), appraisal, (e.g., “how often have you felt that you were unable to control the important things in your life”) and well-being outcomes (e.g., “How often have you felt nervous and stressed”). Thus, it was unclear how to categorize this measure. Finally, we removed studies that explored employees as opposed to entrepreneurs (e.g., Clercq, Dimov, & Belausteguigoitia,

⁵ Notably, we included a Journal of Business Venturing special issue on well-being that is in-press.

2017). The final sample consisted of 32 studies reporting 62 correlations, which is comparable to other quantitative reviews published in the same (or similar) journal(s) (Roth, Bobko, McFarland, & Buster, 2008; Roth et al., 2017).

We leveraged ideas from a prior meta-analysis of the challenge-hindrance framework (LePine et al., 2005) to develop our approach to categorizing stressor measures. Specifically, LePine and colleagues follow the previously validated challenge stressor-hindrance stressor measures (Cavanaugh et al., 2000). This resulted in the following challenge stressors: “job/role demands, pressure, time urgency, and workload” (LePine et al., 2005: p. 767). Further, the following were categorized as hindrance stressors: “constraints, hassles, resource inadequacy, role ambiguity, role and interpersonal conflict, role dissensus, role interference, role strain (items similar to role ambiguity) role clarity (reverse-coded), role overload, supervisor-related stress, and organizational politics” (p. 767). We followed these categorizations; however, for some stressors, it was not immediately clear if they should be categorized as challenge or hindrance, and they had not been categorized by other challenge-hindrance studies (LePine et al., 2005; Podsakoff et al., 2007; Crawford et al., 2010). In these cases, we consulted the literature on appraisal (Lazarus, 1993; Lazarus, 2001; Lazarus & Folkman, 1984) and considered which category the stressor was most similar to. For example, work hours (e.g., Cardon & Patel, 2015; Gorgievski, Moriano, & Bakker, 2014) was categorized as a challenge stressor because it is similar to job demands. In addition, there were instances where we reverse coded a measure that would reflect a stressor when it was low. For example, autonomy and control are hindrance stressors when there is a lack of autonomy or lack of control. We present the full list of articles, which also details the challenge and hindrance stressors and their categorizations, in Table 1 and 2.

When considering appropriate outcomes of the challenge-hindrance framework for entrepreneurship, contextual differences between entrepreneurial and other organizational contexts are apparent. For example, while job performance was the primary measure for LePine et al.'s paper, entrepreneurship research tends to focus on other indicators. Indeed, given the entrepreneur's role in forming and running the venture, we strived to examine organizational-level outcomes as well. Yet, we identified other outcomes that clearly held importance for entrepreneur job performance, including: growth aspirations (Estrin, Korosteleva, & Mickiewicz, 2013), intentions to quit (e.g., Gorgievski et al., 2010), innovative behavior (Ingram et al., 2016), and decision quality (Carr & Blettner, 2010). All measures of the challenge stressor to venture performance relationship were venture performance measures; however, for the relationship between hindrance stressors and venture performance, 4 out of 12 correlations measured job performance instead of financial performance. We refer to all these performance metrics together as *performance*, reflecting "observable things people do (i.e., behaviors) that are relevant for the goals of the organization" (Campbell, McHenry, & Wise, 1990: p. 314).⁶

One concern with existing literature on stress (in entrepreneurship and in general) is the tendency to only use a global well-being measure or to use one measure (e.g., psychological well-being, physiological well-being, etc.) to broadly represent *well-being*. This approach does not consider that stressors may influence different forms of well-being in different ways. Thus, to determine well-being outcomes, we started with the four faces of happiness outlined by Wright (2014), who separates well-being into objective health conditions (called physiological well-being here), satisfaction, personal efficacy (called eudaimonic well-being here), and emotion-

⁶ We conduct a robustness test to verify that the effects of hindrance stressors on job versus venture performance for entrepreneurs are statistically similar. These results are available in Table 5.

based well-being. We keep these categories, with the exception of separating emotion-based well-being into psychological and emotional components, as these have been conceptually separated by many scholars (e.g., Lazarus & Folkman, 1984). This allows us to explore more precise effects involving challenge and hindrance stressors.

Results

Insert Table 3 about here

To derive the results presented in Table 3, we use random effects meta-analysis to correct for sampling error, estimate a sample size weighted average effect size, and correct for unreliability within measures to obtain corrected effect size estimates (Hunter & Schmidt, 2004). Since several of our measures were missing reliability estimates, we adopt the approach advocated by Aguinis et al., (2011) that the average reliability of papers pulled for meta-analysis in top-tier management science research is .80. Thus, we assume .80 reliability for all measures in our analysis, although we do still report the reliabilities that were available. Through this analysis, we estimate true population effect sizes between predictors and criterions. A hypothesis is supported when the confidence interval (CI) does not contain zero and is in the hypothesized direction (i.e., positive or negative).

Hypothesis 1 predicted that challenge stressors have a positive relationship to venture performance. We find support for this hypothesis; specifically, challenge stressors are positively associated with venture performance ($r_c = .16$, CI = .02 to .24). Hypothesis 2a-2c suggested that challenge stressors have a positive relationship to emotional well-being, eudaimonic well-being, and life satisfaction, respectively. We find partial support for some,

but not all, of these hypotheses. While challenge stressors are positively associated with emotional well-being ($r_c = .17$, CI = .07 to .20) and life satisfaction ($r_c = .27$, CI = .10 to .33), we find no evidence of a relationship with eudaimonic well-being ($r_c = -.05$, CI = -.16 to .08). Hypothesis 2d and 2e suggested that challenge stressors have a negative relationship to psychological well-being and physiological well-being, respectively. We find support for 2d but not for 2e. While challenge stressors are negatively associated to physiological well-being ($r_c = -.12$, CI = -.18 to -.07), they have no discernable effect on psychological well-being ($r_c = .00$, CI = -.12 to .11). Hypothesis 3 suggested that hindrance stressors have a negative relationship to venture performance. This hypothesis is not supported ($r_c = -.02$, CI = -.07 to .04). Finally, hypothesis 4a-e suggested that hindrance stressors have a negative relationship with all well-being indicators. We find full support for these hypotheses; specifically: emotional well-being ($r_c = -.31$, CI = -.33 to -.16), eudaimonic well-being ($r_c = -.24$, CI = -.27 to -.11), life satisfaction ($r_c = -.31$, CI = -.38 to -.11), physiological well-being ($r_c = -.17$, CI = -.20 to .07), and psychological well-being ($r_c = -.32$, CI = -.37 to -.18) are all negatively associated with hindrance stressors.

Post Hoc Analyses

Power. One potential concern in our analysis is the small number of studies. In this regard, we seek to understand type I error (i.e., incorrectly rejecting a null hypothesis) and type II error (i.e., failing to reject a false null hypothesis) risks. Since type I error is pre-determined by α , we can be certain that our risk of type I error is 5%, which is the standard for organizational research. Type II error is a potential concern for three of our hypotheses that did not find significant results because a small total number of studies and/or small total sample sizes may have contributed to the non-finding.

A common approach for addressing power is a power analysis, preferably as an *a priori* method to understand sample sizes needed to avoid type II errors (i.e., failing to reject a false null hypothesis, Valentine, Pigott, & Rothstein, 2010). Power analyses are meant to be used before data collection, by estimating expected effect sizes, and allowing an understanding of the necessary number of articles and sample size per articles to achieve a given power (Valentine et al., 2010). However, an *ex post* power analysis would not be helpful in this case: our significant results (results that do not include zero within the 95% confidence interval) provide the necessary information to make conclusions. In other words, since we have already collected the data, there need be no assumptions of effect sizes, studies to be found, or within-study sample sizes; rather, these are objective numbers based on the studies collected, and are already incorporated into our findings. Since power relates to concerns of a type II error (i.e., failing to reject a false null hypothesis), and since only three of our tests failed to reject the null (i.e., challenge stressors impact on psychological and eudaimonic well-being, and hindrance stressors impact on performance), nine of our results are robust to power concerns. For the three that were rejected, a q-test suggests that heterogeneity exists across the effects. This suggests that one reason we did not find significant results is because the effect of the stressor can be either positive or negative dependent on mediators or moderators. For example, appraisal is known to mediate relationships between stressors and outcomes, particularly in contexts of high control (Cooper et al., 2001). Additionally, age and entrepreneurial experience may moderate these results because those with more life experiences could be more effective at properly assessing the significance of a stressor (i.e., appraising) to the venture and themselves and thus coping more effectively.

Comparison to Organizational Sciences Results. LePine et al. (2005) conducted a meta-analytic review of the challenge-hindrane framework for employees within organizations. Because of this, one way to interpret our results in terms of the generalizability of the challenge-hindrane framework is to directly compare our findings with theirs. LePine et al., (2005) measures of strain as “anxiety, depersonalization, depression, emotional exhaustion, frustration, health complaints, hostility, illness, physical symptoms, and tension” (p. 767). To directly compare our results to their assessment of strain, we combined our conceptualization of psychological and physiological health because both categories are reflected in LePine et al’s (2005) strain measure (i.e., anxiety, depersonalization, depression, emotional exhaustion, frustration, and hostility represent psychological measures, whereas health complaints, illness, physical symptoms, and tension represent physiological measures). We then re-assessed the effects of challenge and hindrance stressors. Because LePine et al., (2005) use 90% CI, we also use a 90% CI in this analysis, but report 95% CI alongside them for comparison. For comparability purposes, we discuss results in terms of 90% CI’s. Also, when reading the Table, please bear in mind that because we conceptualized our outcomes as “well-being”, and their conceptualization is “strains” (i.e., the opposite of well-being), the sign of the outcomes is flipped. Our findings are presented in Table 4:

Insert Table 4 about here

These results reveal two important things about the challenge-hindrane framework regarding strain outcomes. First, the evidence supports the notion that challenge stressors are straining, but less so than hindrance stressors, in entrepreneurial contexts. Specifically, the effect

of challenge stressors on strain for entrepreneurs ($r_c=.08$, CI = .00 to .12) is less than the effect of hindrance stressors on entrepreneur strain ($r_c=.28$, CI = .17 to .26). Given that the effect of hindrance stressors on strain is 3.5 times larger than the effect of challenge stressors, it appears that a primary focus for entrepreneurship researchers should be determining how to mitigate these stressors.

Second, although the challenge-hindrance stressor framework does generalize to entrepreneurship, the effects of stressors on strain is significantly different in entrepreneurial contexts than in organizational ones. Indeed, the effect of challenge stressors on entrepreneurial strain ($r_c=.08$, CI = .00 to .12) is less than the effect of challenge stressors on employee strain ($r_c=.40$, CI = .30 to .51; LePine et al., 2005). This finding suggests that the effect of challenge stressors on employee strain is over 1.5 times larger than the effect of hindrance stressors on entrepreneurs. Similarly, the effect of hindrance stressors on entrepreneur strain ($r_c=.28$, CI = .17 to .26) is less than the effect of hindrance stressors on employee strain ($r_c=.58$, CI = .48 to .67). Thus, hindrance stressors effect employee strain twice as much as they effect entrepreneurs. Together, these findings suggest that despite objectively similar stressors, something is different between these two groups that results in different outcomes. Certainly, there is a strong likelihood that our advice towards entrepreneurs trying to effectively manage stressors needs to be qualitatively different than the advice we provide in other organizational settings. Nonetheless, the differences between these contexts cannot be adequately understood without tests to explore moderators and mediators.

Finally, because some of our performance measures can be categorized as venture performance, and others as job performance, we tested the effects of challenge and hindrance

stressors on venture and job performance separately. We also compare these findings to LePine et al., (2005), as presented in Table 5:

 Insert Table 5 about here

Our results suggest that the effect of challenge stressors on venture performance ($r_c = .16$, $CI = .05$ to $.21$) is statistically similar to the effect of challenge stressors on employee job performance ($r_c = .12$, $CI = .01$ to $.23$). This suggests that challenge stressors may be helpful for both individual- and organizational-level outcomes. We also find that the effect of hindrance stressors on job versus venture performance in entrepreneurial settings is indistinguishable, as the CI are overlapping. Finally, we find that hindrance stressors, regardless of performance metric used, have statistically different effects on employees than on entrepreneurs. Specifically, while hindrance stressors do not have a statistically significant effect on entrepreneur job or venture performance, they do have such an effect on employee job performance ($r_c = -.20$, $CI = -.23$ to $-.16$). This suggests that there is likely a difference between entrepreneurial and organizational settings in terms of degrees of control, which coincides with an abundance of prior literature (e.g., Blanchflower, 2004, Hundley, 2001).

Credibility Intervals. Because confidence intervals are calculated before corrections for measurement error, we also provide credibility intervals, which are calculated after corrections for measurement error. Our results, presented in Table 6, demonstrate that our findings are mostly robust. Specifically, while confidence intervals suggest that hindrance stressors have a negative effect on life satisfaction ($r_c = -.31$, $CI = -.38$ to $-.11$), these results are inconclusive when using credibility intervals ($r_c = -.31$, $CI = -.66$ to $.13$). Additionally, we could not calculate

credibility intervals for the relationships between challenge stressors and life satisfaction or hindrance stressors and emotional well-being because the two-study sample size did not provide enough variance.

Insert Table 6 about here

DISCUSSION

Through our quantitative review of the entrepreneurial stress domain, we make three theoretical contributions. First, we test the generalizability of the challenge-hindrance framework. We reveal that the framework does apply to entrepreneurial settings: challenge stressors have different effects on entrepreneurs than do hindrance stressors, suggesting that these categorizations are appropriate. Specifically, challenge stressors promote emotional well-being, life satisfaction, and performance; however, they negatively effect physiological well-being. Conversely, hindrance stressors have negative effects on all well-being indicators while having a negligible effect on performance. This shows that entrepreneurs should strive to eliminate hindrance if possible. Indeed, it may be that evidence of a health-wealth tradeoff (Cardon & Patel, 2015) could be largely avoided if entrepreneurs were capable of minimizing the occurrence of hindrance stressors.

Second, we show conclusive evidence that entrepreneurs (who operate in weak contexts) experience different effects from stressors than do non-entrepreneurs (who operate in strong contexts). Specifically, challenge stressors only effect entrepreneur strain to a small extent, while having over 4 times the effect on non-entrepreneurs. Similarly, hindrance stressors are roughly twice as impactful on non-entrepreneurs than on entrepreneurs. Finally, while challenge stressors

do appear to impact performance of both groups in a similar fashion, hindrance stressors have no discernable effect on entrepreneur performance, while exhibiting a moderate effect size on non-entrepreneurs. These findings suggest that something is different between entrepreneurial and non-entrepreneurial contexts that causes such a dramatic difference in effects. One factor that is very likely to play a role is that entrepreneurs exhibit greater control (Bakker & Demerouti, 2007). However, we find several significant Q statistics, suggesting that some entrepreneurs experience better outcomes than others. This provides strong evidence that despite the utility of the challenge-hindrance framework, appraisal likely produces across-individual variation in weak contexts such as entrepreneurship. Because entrepreneurs tend to have control over their environments (Baron, 2010), the way they appraise stressors may determine how the stressors affect their well-being and performance more than the objective nature of the stressors themselves. Indeed, several of our findings are straddling no effect and yet have significant Q-statistics. This implies that appraisal may be the difference between positive and negative outcomes for entrepreneurs. Given this finding, despite the challenges in measuring appraisal, there appears to be enough value in understanding its effects to attempt further exploration.

Third, we test five different facets of entrepreneur well-being, finding differential effects for challenge stressors but not for hindrance stressors. For challenge stressors, it appears that prior ambiguous findings are in part due to the lack of specification regarding what well-being is. Recent essays from the *Journal of Business Venturing* special issue on well-being will be helpful in resolving this (e.g., Bhuiyan & Ivlevs, In Press; Ryff, In Press); nonetheless, we echo Cooper et al.'s (2001) argument that stress should not be defined as an outcome. If we define stress as an outcome we inevitably will run to this issue: if stress is represented as emotional well-being in one study and as physiological well-being in another, how can we explain divergent results? For

example, if a stressor produces positive emotions while also causing somatic complaints, are they 'stressed' or not? For this reason, our best opportunity to understand entrepreneur stress as a research community is to appropriately reference stress as a process which notably includes appraisal as a mediator of objective events (Cooper et al., 2001; Lazarus & Folkman, 1984).

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⁷An asterisk (*) indicates that the article was one of the studies analyzed in the quantitative review.

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APPENDIX A

Table 1: Articles Measuring Challenge Stressor Outcomes

Study	N Size	Stressor	Outcome	Correlation	Stressor	Outcome
Psychological Well-Being						
Gielnik, Zacher, and Frese (2012)	84	Future Opportunities	Mental Health	0.10	-	0.77
Murnieks, Arthurs, Cardon, Farah, Stornelli, and Haynie (In Press)	105	Hours Worked	Perceived Exhaustion*	-0.02	-	0.91
Nguyem and Sawang (2016)	167	Work-to-Family Enrichment	Mental Health	0.13	0.84	0.88
Parasuraman and Simmers (2001)	99	Hours Worked	Psychological Well-Being	-0.11	-	0.93
Taris, Geurts, Schaufeli, Blonk, and Lagerveld (2008)	477	Job Demands, Number of Hours Worked	Exhaustion*	-0.17	-	0.80
Totterdell, Wood, and Wall (2006)	52	Problem-Solving Demands	Job-Related Anxiety*, Job Related Depression*	-0.08	0.75	0.86
Wei, Cang, and Hisrich (2015)	289	Demands-of-Knowledge	Emotional Exhaustion*, Depersonalization*	0.23	-	0.84

Table 1 Continued

Study	N Size	Stressor	Outcome	Correlation	Stressor	Outcome
Emotional Well-Being						
Cardon and Patel (2015)	688	Hours Worked	Positive Affect	0.16	-	-
Gorgievski, Moriano, and Bakker (2014)	180	Hours Worked	Positive Affect, Negative Affect*	0.03	-	-
Murnieks, Cardon, and Haynie (In Press)	166	Hours Per Week	Harmonious Passion	0.04	-	0.76
Physiological Well-Being						
Cardon and Patel (2015)	688	Hours Worked	Blood Pressure* and Subjective Stress*	-0.13	-	-
Gielnik, Zacher, and Frese (2012)	84	Future Opportunities	Physical Health	0.1	-	0.76
Taris, Geurts, Schaufeli, Blonk, and Lagerveld (2008)	477	Job Demands, Number of Hours Worked	Psychosomatic Health Complaints*	-0.15	-	0.79
Eudaimonic Well-Being						
Stephan and Uhlaner (2010)	40	Opportunity Existence	Entrepreneurial Self-Efficacy	0.03	-	-
Taris, Geurts, Schaufeli, Blonk, and Lagerveld (2008)	477	Job Demands, Number of Hours Worked	Professional Efficacy	0.06	-	0.78
Wei, Cang, and Hisrich (2015)	289	Demands-of-Knowledge	Sense of Achievement	-0.21	-	0.87

Table 1 Continued

Study	N Size	Stressor	Outcome	Correlation	Stressor	Outcome
Life Satisfaction						
Nguyem and Sawang (2016)	167	Work-to-Family Enrichment	Job Satisfaction, Family Satisfaction, Life Satisfaction	0.28	0.84	0.80
Parasuraman and Simmers (2001)	99	Hours Worked	Job Satisfaction, Career Satisfaction, Family Satisfaction	0.11	-	0.82
Venture Performance						
Cardon and Patel (2015)	688	Hours Worked	Income	0.26	-	-
Fasci and Valdez (1998)	604	Hours Worked	Income/Profit	0.32	-	-
Gielnik, Zacher, and Frese (2012)	84	Future Opportunities	Venture Growth	0.33	-	-
Gimeno, Folta, Cooper, and Woo (1997)	1547	Hours Worked	Radius of Business Sales	0.00	-	-
Gorgievski, Moriano, and Bakker (2014)	180	Hours Worked	Venture Growth	0.00	-	-

*Indicates Reverse Coded

Table 2: Articles Measuring Hindrance Stressor Outcomes

Study	N Size	Stressor	Outcome	Correlation	Stressor	Outcome
Psychological Well-Being						
Bluedorn and Martin (2008)	183	Job Flexibility*	Anxiety*	-0.21	0.69	0.66
Fernet, Torrès, Austin, and St-Pierre (2016)	377	Role Stress	Burnout*	-0.28	0.90	0.86
Gorgievski, Bakker, Schaufeli, Van der Veen, and Giesen (2009)	260	Financial Constraints	Psychological Distress*	-0.36	0.85	-
Nguyem and Sawang (2016)	167	Work-Family Conflict	Psychological Well-Being	-0.15	0.87	0.88
Parasuraman and Simmers (2001)	99	Work-Family Conflict	Psychological Well-Being	-0.55	0.84	0.93
Rahim (1996)	238	Role Stress	Strain*	-0.45	-	-
Taris, Geurts, Schaufeli, Blonk, and Lagerveld (2008)	477	Job Control*	Exhaustion*	-0.12	0.63	0.80
Totterdell, Wood, and Wall (2006)	52	Job Control*	Job-Related Anxiety*, Job Related Depression*	-0.20	0.87	0.86
Wei, Cang, and Hisrich (2015)	289	Work Overload, Competition, Management Responsibility	Emotional Exhaustion*, Depersonalization*	-0.34	-	0.84
Wincent and Örtqvist (2009)	282	Role Conflict, Role Ambiguity, Role Overload	Depression*	-0.19	-	-
Wincent, Örtqvist, and Drnovsek (2008)	116	Role Conflict, Role Ambiguity, Role Overload	Exhaustion*	0.03	0.70	0.91

Table 2 Continued

Study	N Size	Stressor	Outcome	Correlation	Stressor	Outcome
Emotional Well-Being						
Fernet, Torres, Austin, and St-Pierre (2016)	377	Role Stress	Loneliness*	-0.23	0.90	-
Gorgievski, Giesen, and Bakker (2000)	91	Financial Constraints	Positive Affect, Negative Affect*	-0.32	0.81	0.77
Physiological Well-Being						
Gorgievski, Giesen, and Bakker (2000)	91	Financial Constraints	Physical Health	-0.21	0.81	-
Leach (1997)	138	Staffing Demands and Work-Nonwork Conflict	Somatic Symptoms*	-0.27	0.80	0.84
Taris, Geurts, Schaufeli, Blonk, and Lagerveld (2008)	477	Job Control*	Psychosomatic Health Complaints*	-0.12	0.63	0.79
Werbel and Danes (2010)	110	Work-Family Conflict	Psychosomatic Health Complaints*	0.03	0.91	0.85
Eudaimonic Well-Being						
Stoner, Hartman, and Arora (1990)	92	Role Conflict	Self-Worth	-0.37	0.88	0.58
Taris, Geurts, Schaufeli, Blonk, and Lagerveld (2008)	477	Job Control*	Professional Efficacy	-0.22	0.63	0.78
Wei, Cang, and Hisrich (2015)	289	Work Overload, Competition, Management Responsibility	Sense of Achievement	-0.09	-	0.87
Life Satisfaction						
Hmieleski and Sheppard (In Press)	303	Work-Family Conflict	Work Satisfaction	-0.15	0.88	0.78
Kibler, Wincent, Kautonen, Cacciotti, and Obschonka (In Press)	186	Autonomy at Work*	Life Satisfaction	-0.31	0.81	

Table 2 Continued

Study	N Size	Stressor	Outcome	Correlation	Stressor	Outcome
Nguyem and Sawang (2016)	167	Work-Family Conflict	Job Satisfaction, Family Satisfaction, Life Satisfaction	-0.28	0.87	0.80
Parasuraman and Simmers (2001)	99	Work-Family Conflict	Job Satisfaction, Career Satisfaction, Family Satisfaction	-0.08	0.84	0.82
Sherman, Randall, and Kauanui (2016)	191	Constraint	Life Satisfaction	-0.43	0.63	-
Stoner, Hartman, and Arora (1990)	92	Role Conflict	Life Satisfaction	-0.44	0.88	0.91
Wincent and Ortqvist (2009)	282	Role Conflict, Role Ambiguity, Role Overload	Life Satisfaction	-0.20	-	-
Wincent, Ortqvist, and Drnovsek (2008)	116	Role Conflict, Role Ambiguity, Role Overload	Entrepreneurial Satisfaction	0.27	0.70	0.94
Performance						
Carr and Blettner (2010)	163	Time Stress	Decision Quality	0.06	0.78	-
Estrin, Korosteleva, and Mickiewicz (2013)	1360	Corruption, Constraints on Executive	Growth Aspirations	-0.01	-	-
Gorgievski, Bakker, Schaufeli, Van der Veen, and Giesen (2009)	260	Financial Constraints	Intention to Quit Business*	0.11	0.85	0.79
Hmieleski and Sheppard (In Press)	303	Work-Family Conflict	Sales Per Employee	-0.06	0.88	-
Ingram, Lewis, Barton, and Gartner (2016)	178	Paradoxical Tensions	Innovative Behavior	-0.20	0.84	0.80
Kariv (2008)	190	Role Conflict, Work Overload, Social Support*	Sales Turnover	-0.10	-	-
Ortqvist, Drnovsek, and Wincent (2007)	183	Role Stress	Subjective Venture Performance	0.14	0.66	0.76
Stewart and Danes (2001)	183	Inclusion Tension, Business Conflict	Gross Sales	0.14	-	-

Table 2 Continued

Study	N Size	Stressor	Outcome	Correlation	Stressor	Outcome
Stoner, Hartman, and Arora (1990)	92	Role Conflict	Subjective Venture Performance	-0.43	0.88	0.80
Wincent and Ortqvist (2009)	282	Role Conflict, Role Ambiguity, Role Overload	Subjective Venture Performance	-0.07	-	-
Wincent, Ortqvist, and Drnovsek (2008)	116	Role Conflict, Role Ambiguity, Role Overload	Intention to Quit Business*	0.13	0.70	0.80

* Indicates Reverse Coded

Table 3: Meta-Analytic Results for the Relationships between Stressors and Outcomes

Variable	Challenge Stressors						Hindrances Stressors					
	r	r _c	95% CI	K	N	Q	r	r _c	95% CI	K	N	Q
Performance	0.13	0.16	(.021, .236)	5	3103	69.86	-0.01	-0.01	(-.065, .045)	11	3310	42.52
Emotional Well-Being	0.12	0.15	(.058, .179)	3	1034	3.64	-0.25	-0.31	(-.332, -.164)	2	468	0.68
Eudaimonic Well-Being	-0.04	-0.05	(-.162, .079)	3	806	13.04	-0.19	-0.24	(-.274, -.111)	3	858	6.86
Life Satisfaction	0.21	0.27	(.098, .329)	2	266	1.90	-0.21	-0.27	(-.317, -.108)	8	1436	50.19
Physiological Well-Being	-0.15	-0.12	(-.177, -.067)	3	1249	4.46	-0.14	-0.17	(-.202, -.069)	4	816	6.26
Psychological Well-Being	0.00	0.00	(-.104, .099)	7	1273	34.09	-0.25	-0.32	(-.326, -.184)	11	2540	52.41

^a r is the sample-weighted correlation; r_c is the estimated true correlation corrected for sampling error unreliability; 95% CI is the 95% confidence interval around the estimated true correlation; K is the number of correlations used for the meta-analysis; and N is the combined sample size for the meta-analysis; Q is the chi-square test for the homogeneity of true correlations across studies

Table 4: Meta-Analytic Comparison of Entrepreneurs and Employees

Variable	Challenge Stressors						Hindrane Stressors					
	r	r _c	90% CI	95% CI	K	N	r	r _c	90% CI	95% CI	K	N
Strains - Entrepreneur	0.06	0.08	(.00, .12)	(-0.01, 0.13)	10	2522	0.22	0.28	(.18, .27)	(.17, .28)	15	3356
Strains - Employees ^b	0.33	0.40	(.30, .51)	-	16	3080	0.37	0.58	(.48, .67)	-	27	5586

^a r is the sample-weighted correlation; r_c is the estimated true correlation corrected for sampling error unreliability; 95% CI is the 90% confidence interval around the estimated true correlation; K is the number of correlations used for the meta-analysis; and N is the combined sample size for the meta-analysis

^bResults taken directly from LePine, Podsakoff, & LePine (2005)

Table 5: Meta-Analytic Comparison of Entrepreneur Job and Organizational Performance

Variable	Challenge Stressors						Hindrane Stressors					
	r	r _c	90% CI	95% CI	K	N	r	r _c	90% CI	95% CI	K	N
Job Performance ^b	-	-	-	-	-	-	0.00	0.00	(-.05, .05)	(-.06, .06)	4	1961
Venture Performance	0.13	0.16	(0.05, 0.21)	(.02, .24)	5	3103	0.02	0.03	(-.05, .10)	(-.07, .12)	7	1349
Performance - LePine et al., (2005) ^c	0.09	0.12	(.01, .23)	-	20	3465	0.14	-0.20	(-.23, -.16)	-	73	1494 3

^ar is the sample-weighted correlation; r_c is the estimated true correlation corrected for sampling error unreliability; 95% CI is the 90% confidence interval around the estimated true correlation; K is the number of correlations used for the meta-analysis; and N is the combined sample size for the meta-analysis

^bAll challenge stressor - performance correlations for entrepreneurs reflected effects on organizational performance

^cResults taken directly from LePine, Podsakoff, & LePine (2005)

Table 6: Credibility Intervals for Meta-Analytic Results

Variable	Challenge Stressors				Hindrance Stressors			
	r_c	95% CI	K	N	r_c	95% CI	K	N
Performance	0.16	(.161, .161)	5	3103	-0.01	(-.241, .216)	11	3310
Emotional Well-Being	0.15	(.103, .192)	3	1034	-0.31	-	2	468
Eudaimonic Well-Being	- 0.05	(-.316, .213)	3	806	-0.24	(-.388, -.093)	3	858
Life Satisfaction	0.27	-	2	266	-0.27	(-.657, .125)	8	1436
Physiological Well-Being	- 0.12	(-.221, -.085)	3	1249	-0.17	(-.273, -.065)	4	816
Psychological Well-Being	0.00	(-.349, .343)	7	1273	-0.32	(-.588, -.042)	11	2540

^a r_c is the estimated true correlation corrected for sampling error unreliability; 95% CI is the 95% credibility interval around the estimated true correlation corrected for measurement error; K is the number of correlations used for the meta-analysis; and N is the combined sample size for the meta-analysis

CHAPTER 2**APPRAISING, FEELING, AND COPING: HOW DAY-LEVEL STRESSOR APPRAISALS INFLUENCE ENTREPRENEUR AFFECT AND COPING STRATEGIES**

ABSTRACT

Although entrepreneurs face highly stressful work contexts, a growing literature suggests that they cope better than the general population when confronted with these workplace stressors. Yet, the theoretical mechanisms that underlie this enhanced coping ability remain ambiguous, with findings often derived from static designs. Consequently, in this manuscript, we examine the influence of cognitive appraisals as they affect entrepreneur emotional well-being and behavioral coping strategies at the day-level. First, we integrate the transactional model of stress and conservation of resources theoretical perspective to develop a day-level model of stress. We then test this theory, incorporating day-level effects to explore how exposure to stress affects resultant affect and coping in entrepreneurs. Over a 20-day daily diary study, our analyses suggest that entrepreneurs' daily variations in appraisal are virtuous or vicious patterns which impact their emotional well-being and their engagement or disengagement with stressors on that day. In contrast to prior work, we demonstrate the key role of appraisal in this process and that appraisal – of the same stressor – varies day-to-day. We also shed new light on the effect of appraisal on emotional well-being. From these findings, we offer an important path forward for the study of stress for both entrepreneurs and non-entrepreneurial settings.

INTRODUCTION

Stress is a process through which psychological experiences and demands (stressors) produce both proximal and distal changes (i.e., strains) in mental and physical health (Ganster & Rosen, 2013). Entrepreneurs face a variety of stressors as they negotiate tradeoffs between their personal health and venture wealth, including role overload, role ambiguity, and uncertainty (Cardon & Patel, 2015), and such stressors have been linked to reduced creativity, decision making quality, learning, passion, and a heightened risk of health problems (e.g., Baron, 2008; Baron, Franklin, & Hmieleski, 2016; Boyd & Gumpert, 1983; Cardon & Patel 2015; Cardon, Wincent, Singh, & Drnovsek, 2009; Kim & Diamond, 2002). Thus, stressors have clear implications for entrepreneurs' well-being (Baron et al., 2016; Ganster & Perrewé, 2011; Griffin & Clarke, 2011; Rauch, Fink, & Hatak, 2018).

Yet, despite recognition that entrepreneurs face demanding work environments, recent research also suggests that entrepreneurs generally manage stress well, experiencing lower levels of stress than the general population as a function of their psychological capital (Baron et al., 2016; Hessels, Rietveld, & van der Zwan, 2017). While this research recognizes some channels – personal resources (Hobfoll, 1989) and job control (Karasek, 1979) – through which entrepreneurs successfully manage stress, much of our understanding of entrepreneur stress management is based on designs offering single reports of constructs in the stress process (for an exception, see Foo, Uy, & Baron, 2009). The danger of static designs is that stress is a theoretically dynamic process that unfolds across time (Folkman et al., 1986; Grebner, Semmer, & Elfering, 2005; McGrath & Beehr, 1990), and thus our static understanding of stress within entrepreneurial contexts may not be reflective of how the process unfolds from day-to-day.

With this in mind, Baron and colleagues (2016) also speculated that other theoretical mechanisms impact how entrepreneurs manage stress. For example, the Transactional Model of Stress (Lazarus, 1993; Lazarus & Folkman, 1984) and Conservation of Resources (Hobfoll, 1989; 2001) both emphasize the importance of cognitive appraisal as an influence on subsequent stress processes and as a malleable evaluation of a stressor over time. Appraisal, an entrepreneur's subjective assessment of a source of stress as a challenge or a hindrance, reveals important insights into the proximal influences of stressors and allows an examination of non-static models (Bar-Tal, Cohen-Mansfield, & Golander, 1998; Lazarus, 1993; Lazarus & Folkman, 1984). Indeed, the transactional model of stress (Lazarus, 1993) predicts that individuals may appraise the same stressor differently over time, suggesting significant within- and between-subjects differences in appraisal.

Although this contrasts with current convention that artificially categorizes stressors as “challenge” (i.e., positive opportunities for development and growth) or “hindrance” stressors (i.e., performance harming) (e.g., LePine, Podsakoff, & LePine, 2005), entrepreneurial contexts offer work environments that differ significantly from more established organizational forms (see Williams, Munyon, & Fuller, in press for discussion). Therefore, rather than impose artificial hindrance or challenge appraisals on entrepreneurs, there is need to understand their self-identified stressors, and then assess appraisal reactions to these stressors.

A study of entrepreneur appraisal solves two unknowns in existing literature. First, it sheds new light on the stress process over time, ultimately guiding future entrepreneurship researchers either towards more dynamic models to better capture appraisal, or revealing that existing static models are sufficient without incorporating appraisal. Second, it also further clarifies differences between entrepreneurial and occupational contexts by revealing that it is appropriate to artificially

categorize stressors in entrepreneurship or revealing that it is not. Consequently, the purpose of this paper is to explore if entrepreneur appraisals of stressors change over time, and if so, how day-level appraisal influences day-level emotional well-being (i.e., EWB; positive and negative affect; Wright, 2014) and coping (i.e., active and disengagement coping). An ideal way of addressing this purpose is a daily diary study, which provides a mechanism with which to explore how entrepreneurs appraise and respond to stressors across time.

Several intended contributions derive from this investigation. First, we extend and develop theory on the nature of entrepreneurs' stress appraisals and their downstream affective and behavioral consequences, highlighting the critical role of cognition in the stress process (Lazarus & Folkman, 1984). Although prior work has detailed the importance of behaviors as an influence on stress management (Demerouti, Bakker, & Halbesleben, 2015), our investigation details the sources of immediate behavioral reactions to stressors: appraisal. Second, we challenge existing assumptions that categorize stressors *a priori* by showing that entrepreneurs can appraise the same source of stress differently over time. As a result, we contribute to the broader literature on organizational health by showing that appraisals fluctuate within-subjects (Cooper, Dewe, & O'Driscoll, 2001) and that this fluctuation likely derives from the context (i.e., weak or strong). Third, we tie appraisal to day-level affect, which represents one component of EWB (Wright, 2014). Because venture success depends partly on the way that entrepreneurs feel about their ventures (e.g. Cardon et al., 2009; Foo, Sin, & Yiong, 2006), our findings reinforce and extend the important role that affect plays in entrepreneurship (Cardon, Foo, Shepherd, & Wiklund, 2012).

THEORETICAL FOUNDATIONS

The Value of Appraisal

Appraisal is regarded in the psychology literature as fundamental to understanding reactions to stress (Cooper et al., 2001; Hobfoll, 2001). Once an individual is exposed to a stress stimulus, appraisals initiate a physiological and psychological response to environmental stressors which drives behavioral responses (Ganster & Rosen, 2013; Lazarus, 1966). Thus, appraisals form the foundation to explain entrepreneurs' proximal reactions to stressors (Bar-Tal et al., 1998; Lazarus, 1993).

Given the importance of appraisal, the organizational stress literature has examined how individuals broadly interpret and categorize stress. Specifically, a growing body of literature suggests that stressors can be categorized, *a priori*, as challenges or hindrances (e.g., Cavanaugh, Boswell, Roehling, & Boudreau, 2000; LePine et al., 2005). This categorization hinges on the assumption that workplaces are strong situations with comparable role requirements (cf. Brief & George, 1995), reducing the power of individual and temporal differences in differentiating appraisals. This has shown to be an effective approach for understanding how stressors generally affect individuals working in a variety of occupational settings (LePine et al., 2005).

Yet, entrepreneurs face characteristically weak contexts (see Busenitz & Barney, 1997 and Markman & Baron, 2003 for discussion) with theoretically greater levels of variance in appraisals and subsequent reactions over time as stressor conditions fluctuate (Hessels, Rietveld, & Van der Zwan, 2017). Furthermore, research suggests that entrepreneurs normalize uncertainty and ambiguity (Buttner, 1992; McMullen & Shepherd, 2006), suggesting that entrepreneurs may appraise stressors in ways that contrast with more traditional job roles. Accordingly, current stress theory and the use of *a priori* categorizations of stressors may not adequately explain the proximal

experiences of entrepreneurial stress (Rauch et al., 2018) because the entrepreneurial context is so significantly different from more traditional work contexts (Williams et al., in press).

Moreover, since appraisals are theoretically malleable (Lazarus, 1966; 1991a), individuals can be trained to adapt appraisals in ways that promote functional coping responses over time (Ivancevich, Matteson, Freedman, & Philips, 1990). Therefore, a more rigorous understanding of appraisals can help shed light on entrepreneur outcomes (Kariv, 2008; Jenkins, Wiklund, & Brundin, 2014) and adaptive coping strategies for other populations, as well. Thus, we now consider how appraisal impacts entrepreneur EWB and behavioral coping responses.

The Transactional Model of Stress

The transactional model of stress (Lazarus, 1966; 1991c; 1993) is arguably the most influential theory of the stress process (Ganster & Rosen, 2013), and it makes specific predictions about the role of appraisal as it affects EWB and coping behaviors. The theory predicts that appraisals of stress influence experienced affect and facilitate adaptive coping behaviors. As Lazarus (1991b, p. 356) notes, “Humans and other sentient creatures are constructed so that, except when unconscious... they are continually evaluating what is happening from the standpoint of its significance for their well-being.” This process unfolds as individuals assess the environment and self-regulate in such a way to maintain a positive state of well-being (Ganster & Rosen, 2013; Lazarus, 1991b, 1991c). More specifically, individuals cope in response to appraisals of environmental stressors to reduce discrepancies between current and aspirant states of affect (cf. Higgins, 1987)⁸.

⁸ We focus on *challenge* and *hindrance* appraisal throughout the paper in order to be consistent with prior work on the challenge-hindrance framework (e.g., LePine et al., 2005). Although Lazarus’ conceptualization of appraisal also includes harm/loss, harm/loss appraisal represents appraisal of past events, and thus are not a focus of this study.

Affect is a transient mood state reflecting positive (i.e., positive affect) and negative feelings (i.e., negative affect; Watson, 2000). Exposure to stressors elicits a process that theoretically influences affect through specific emotions (Lazarus, 1991a) and changes in the resource state of the individual (Hobfoll, 1989). In this way, affect represents a consequence of the stress appraisal process, and also a globalized emotion-based form of well-being for individuals (Wright, 2014). Accordingly, entrepreneur positive and negative affect are subject to affective events that require adaptation of the individual to his or her environment (cf., Weiss & Cropanzano, 1996), and we consider positive and negative affect a type of EWB this paper (Wright, 2014).

Meanwhile, coping consists of cognitive and behavioral efforts to manage demands that exceed an individual's resources (Lazarus & Folkman, 1984). Two prevalent forms of coping are problem-focused and avoidance coping (for a broader view of different coping conceptualizations, see: Carver, Scheier, & Weintraub, 1989; Roth & Cohen, 1986). Problem-focused coping is intended to ameliorate the underlying cause of stress, or lessen the prevalence of the cause of stress, through engagement with the stressor. For this manuscript, consistent with prior research (Uy et al., 2013), we adopt the term *active coping*, which holds the same meaning as Lazarus' problem-focused conceptualization (Lazarus & Folkman, 1984; LePine et al., 2005). Avoidance coping, in contrast, is principally concerned with *not* having to deal with the stressor. Consistent with prior work, we focus on *disengagement coping* (Carver, Scheier, & Weintraub, 2013; Litman, 2006), which represents avoiding the source of stress entirely by simply giving up (e.g., Connor & Connor, 2003; Fortune, Richards, Griffiths, & Main, 2002). Below, we develop hypotheses concerning the influence of cognitive appraisals on entrepreneur EWB and coping behavior.

HYPOTHESES

Variation in Appraisal

Based on a phenomenological paradigm, appraisals reflect an individual's assessment of an event's significance in relation to themselves (Lazarus, 1991c; Perrewé & Zellars, 1999). For this reason, appraisals may be subject to fluctuation over time for the same individual, and at least two factors influence this variability. First, entrepreneur appraisals may change due to significant life events or learning experiences. Here, the individual is adapting to the environment in an effort to maintain a positive state of well-being (Lazarus, 1993). Second, environmental conditions can change (e.g., an important employee quits). These environmental stimuli act as potential catalysts of a stress response for entrepreneurs encountering them (Folkman et al., 1986). Of course, it is also possible that both the entrepreneur and the environment change simultaneously (Markman & Baron, 2003). Regardless, since variation in appraisal stems from changes in either individuals or environments (or both; Lazarus, 1993), theory predicts that appraisals may vary at the day level, which we now consider.

First, day-to-day changes within entrepreneurs may facilitate shifts in appraisal in relation to key stressors. By key stressors, we mean the stressors that are most salient in the entrepreneur's cognition, or to which they are most frequently exposed (cf., Paterson & Neufeld, 1987). Since appraisal represents cognitive evaluations about a stressor, factors that vary day-to-day which influence thinking could change the way a stressor is perceived. For example, sleep can serve to influence one's creativity and ability to focus on stressors (Weinberger, Wach, Stephan, & Wegge, 2018). Thus, entrepreneurs who deal with work constraints poorly one day may find themselves more capable on the next, or vice versa, as a function of the presence or absence of this critical resource. Specifically, even if stressors do not objectively change across days, changes in perceived ability to cope may shift appraisal.

Another individual-level consideration is that entrepreneurs are notorious for shifting roles and responsibilities from day-to-day, a process justly termed as ‘wearing many hats’ (Mathias & Williams, 2017; for broader work on day-to-day identity shifts, see Ashforth, Kreiner, & Fugate, 2000; Marks, 1977). When entrepreneurs put on different hats, they are effectively taking on new roles or identities, each of which carries unique sets of expectations (Stets & Burke, 2000; Mathias & Williams, 2017) and which prompts entrepreneurs to think differently about situations which arise in their work life (Mathias & Williams, 2017). Thus, the differential tasks in which an entrepreneur engages may change the way they appraise the same source of stress from day-to-day.

Second, we expect that entrepreneurial environments are also subject to day-to-day shifts in appraisal as a function of the dynamic nature of entrepreneurship (Davidsson, 2015). Dynamism in entrepreneurial settings comes in many forms, ranging from high-level fluctuations such as regulatory change or technological innovation, or firm level changes such as getting a new client, losing an important business partner or employee, preparing for an up and coming venture capital pitch, or dealing with customer complaints. In entrepreneurship, there is always a new stressor, a stressor that has gotten worse, or at the very least, the unbearable potential for something to go wrong creates a stressor of its own (Boyd & Gumpert, 1983). In other words, the environment, and thus its influence on the business and entrepreneur, frequently shifts, exposing entrepreneurs to new environmental challenges that can catalyze the stress process.

In sum, appraisals of a stressor derive from an entrepreneur’s assessment of that stressor’s relational meaning to themselves (Lazarus, 1993). For this reason, as individuals or environments change, appraisal is subject to variation. Normal fluctuations in day-to-day cognition, the demanding responsibility of multiple tasks and roles (Mathias & Williams, 2017), and the natural

dynamism of the entrepreneurial context all serve to influence the individual-environmental relationship at the day-level. Since individuals constantly evaluate and reassess stressors to properly respond, we expect that entrepreneurs will match these variations with an updated appraisal of the same stressor. Thus, in contrast to prior work which suggests that sources of stress can be categorized *a priori* as challenge or hindrance (e.g., LePine et al., 2005), we posit that for entrepreneurs:

Hypothesis 1: *There is within entrepreneur variation in appraisal of the same source of stress from day-to-day.*

Challenge Appraisal

Insert Figure 1 about here

Although appraisals are theoretically subject to change over time within an individual, they also have important day-level ramifications (Lazarus, 2000; Weiss & Cropanzano, 1996). Indeed, as conceptualized in Figure 1 above, appraisals of environmental stimuli theoretically influence entrepreneur affect (Lazarus, 1991c), which prepare individuals for an active or disengagement coping response (Lazarus & Folkman, 1984). Challenge appraisals serve as cognitive recognition that a stressor offers an opportunity for future gain in relation to a valued goal (e.g., successfully operating a venture). In other words, when entrepreneurs make challenge appraisals, they assess that a stressor is contributory to attaining their desired state of well-being because it facilitates personally-valued positive outcomes. For this reason, challenge appraisals tend to elicit positive affect (see also Folkman & Moskowitz, 2000; Khosla, 2006) at the day-level, characterized by states of eagerness, excitement, and confidence (Folkman & Moskowitz, 2000).

States of positive affect are characterized as “condition” resources in the conservation of resources (COR) theory (Hobfoll, 1989; see also Fredrickson & Joiner, 2002; 2004; Garland et al. 2010), and such condition resources are useful in helping buffer the negative effects of stress (Hobfoll, 1989). By extrapolation, when entrepreneurs experience stressors that result in challenge appraisals, resulting positive affect enables them with the resources needed to actively cope with that stressor. Specifically, COR theory predicts that individuals use existing resources to build an even greater stockpile of resources (i.e., resource caravans) in the present to facilitate better coping possibilities in the future (Hobfoll, Halbesleben, Neveu, & Westman, 2018). This prediction also concords with the broaden and build thesis (Fredrickson & Joiner, 2002), which suggests that positive affect broadens *momentary* thought-action repertoires, promoting the discovery of novel and creative actions and ideas, and ultimately facilitating coping with stress (Aspinwall, 1998). In this framework, positive affect is represented as a sustained form of EWB (Garland et al., 2010; Wright, 2014) which is linked to approach responses (Fredrickson, 2004). When combined, positive affect is a resource that can be used to acquire more resources (Hobfoll et al., 2018), and positive affect provides motivation for daily action towards this aim. Consequently, we propose:

Hypothesis 2: Entrepreneur day-level challenge appraisal of a stressor is positively related to day-level active coping with that stressor through the intervening influence of positive affect.

Hindrance Appraisal

It is also possible for entrepreneur to think negatively about stressors, and such cognitive appraisals have their own unique consequences (Lazarus & Folkman, 1984). Specifically, hindrance appraisal manifests in negative thoughts relating to a stressor (e.g., “I am never going to get through this,” “this will doom my business!”) due to an assessment that the stressor threatens a valued goal (e.g., successfully operating a venture). Since hindrance appraisals represent an

individual's assessment that a stressor has potential for personal loss, they elicit near-immediate negative affect (Lazarus, 1991a). In other words, hindrance appraisals elicit generalized bad feelings about an entrepreneurs' venture because entrepreneurs believe that these stressors will reduce their performance.

Since individuals strive to protect and enhance their resources in the short-term (Hobfoll, 2002), day-level affect influences subsequent coping decisions during the same day. Indeed, one core principal of COR states that, when overstretched, defensive postures are used to protect the self (Hobfoll et al., 2018). In conjunction with this, the safety-signal (Frijda, 1998) and cognitive-tuning perspectives posit (Clore, Schwarz, & Conway, 1994) that negative affect alerts individuals to safe or unsafe environments (Aspinwall, 1998). Thus, it follows that negative affect motivates individuals to take disengagement approaches to stress (Thoreson, Kaplan, Barsky, Warren, & de Chermont, 2003) because negative affect is a state of low resource that strives individuals towards recuperation rather than more direct coping mechanisms (Hobfoll, 1989). Thus:

Hypothesis 3: Entrepreneur day-level hindrance appraisal of a stressor is positively related to day-level disengagement coping with that stressor through the intervening influence of negative affect.

METHODS

We tested our hypotheses on 342 daily responses from 34 entrepreneurs, defined as founders and owners of existing businesses, over a 20-day time period. We employed a daily diary study in which we asked participants to fill out a 4-minute survey each day for 20 days. Our day-level research design has three major advantages. First, examining currently operating entrepreneurs at the daily level allows us to significantly reduce recall bias and establish ecological validity by getting closer to studying entrepreneurial stress in real-world environments (Shiffman, Stone, & Hufford, 2008). Second, our longitudinal design allows for in-depth analysis of

entrepreneur responses to particular stressors (Jex, 1998). Third, by allowing entrepreneurs to self-identify their largest source of stress, we can better understand the stressors that entrepreneurs perceive, and how they respond to these stressors. Notably, after asking entrepreneurs to identify their largest source of stress from operating their venture at the beginning of the study, we ask them to answer all subsequent daily diary surveys *in relation to that specific stressor*. Together, these strengths allowed us to get an in-depth understanding of how entrepreneurs navigate stress.

Sample

We accessed potential participants via five entrepreneurial organizations. Each organization's leader verified that members of their organization are entrepreneurs who currently operate a business and gave us permission to contact their members by email. The lead author also identified entrepreneurs through personal networks who agreed to participate. We initially received 50 responses, but 16 entrepreneurs did not complete the data collection process, leaving us with 34 entrepreneurs in our final sample. Due to the exhaustive nature of the daily diary technique, this type of research tends to trade off large sample sizes with methodological strategies minimizing recall bias and noise and maximizing ecological and internal validity (as noted above) (Beal & Weiss, 2003; Shiffman et al., 2008). Moreover, due to the within-subject design, a larger number of total observations (342 for our study) balances the smaller number of participants (Uy, Foo, & Aguinis, 2010). In addition, power analyses confirm that this sample size is sufficient for testing the proposed relationships. Specifically, the power of a repeated measure, within-factors analysis with 34 groups and total size of 342 is .77 (Faul, Erdfelder, Lang, & Buchner, 2007). Finally, Scherbaum and Ferrerter (2009) suggest that a medium effect size, with 30-35 level 2 respondents, and an average of 10 level-1 measures per respondent, equates to a power between 0.75-0.83. Consequently, this sampling approach provided adequate power to test our hypotheses.

Data Collection

When organizational leaders sent an invitation to participate in our study to entrepreneurs in their network, the invitation to participate included a link to an introductory questionnaire. Those who completed the introductory questionnaire were called by the lead author to introduce the data collection. We began our data collection process within two weeks of all received introductory questionnaires, and we sent a reminder text message to participants the day before sending out the day 1 daily survey. We then sent a text message to entrepreneurs each day for the next 20 days, with a link to the daily survey. Consistent with prior work using similar methodological approaches (Bono, Glomb, Shen, Kim, & Koch, 2013; Foo, Uy, & Baron, 2009; Ilies & Judge, 2002; Judge & Ilies, 2004; Uy, Foo, & Ilies, 2015), most entrepreneurs did not fill out all 20 daily surveys. On average, entrepreneurs filled out 10 daily surveys, a 50% response rate, ranging from 1 to 18. Thus, our final sample size is 342 daily responses from 34 entrepreneurs.

Sixteen entrepreneurs responded to the initial survey but were not included in the results. Twelve of them did not complete the survey despite answering the first question where they agreed to participate. Thus, they did not provide contact information, and were immediately excluded from the study. The other 4 entrepreneurs completely filled out the orientation survey, but not the daily surveys, and thus we reached out to them several times before removing them from the study. We conducted a t-test comparison between the 4 entrepreneurs who did not participate in the study (but provided information in the daily orientation survey) and the 34 entrepreneurs who did complete the study. In terms of chronic levels of strain, those who participated ($M = 2.94$) do not significantly differ from those who did not participate ($M = 2.86$; $t(36) = 0.12$, $p = 0.45$). Thus, we feel confident that, at least among these entrepreneurs, there is not response-bias resulting from differing levels of strain.

Measures

Appraisal. We measured appraisal by asking participating entrepreneurs, in each daily survey, to *evaluate* the same source of stress that they identified as their largest source stress in the introductory questionnaire. They did so using the definitions of challenging (eustress) and hindering (distress) stressors developed and validated by Rodríguez, Kozusznik, and Peiró (2013). Thus, entrepreneurs rated if the stressor was a challenge stressor and/or a hindrance stressor using a scale from 1 (very definitely is NOT a source of opportunity/hindrance) to 6 (very definitely IS a source of opportunity/hindrance). Since appraisal was measured using a single-item scale, we do not report a reliability estimate. While using a single-item scale was a necessary tradeoff of collecting data daily over 20 days, we also reference work suggesting that single item measures provide the same predictive validity of multi-item measures (Bergkvist & Rossiter, 2007). Please see Appendix C for items to each of our measures.

Affect. To capture daily affect (Level 1; within-subject), we utilized a shortened version of the PANAS (Watson, Clark, & Tellegen, 1988; Thompson, 2007) which includes 10 total items (i.e., 5 positive affect items and 5 negative affect items). We tested reliability for variables at the daily level. The average reliability for the positive affect measure was .87, and the average reliability for the negative affect measure was .77.

Coping. Coping was assessed on each daily survey with two scales from the COPE (Carver et al., 1989). To measure active coping, we used a shortened version (3 items) of the Active Coping scale from the COPE (e.g., “I concentrate my efforts on doing something about it”). To measure disengagement coping, we used a shortened version (3 items) of the Behavioral Disengagement scale (e.g., “I admit to myself that I can’t deal with it and quit trying”). Respondents were asked to report, on a scale of 1 (not at all) to 5 (very much) how much they engage in particular coping behaviors. Prior to distributing surveys to our sample, we asked several non-author academics to

take the full version (i.e., no items removed) of our daily survey for 5 days. This identified that the daily surveys were too long, indicated by time to completion above the recommended 1-2 minutes for daily diary studies (Beal & Weiss, 2003). As a result, we sought to shorten items where applicable, a practice consistent with this methodology (Uy et al., 2010). We made each decision by conversing between each research team member and an academic (non-coauthor) who is also an entrepreneur. All four of us agreed, “I took direct action to get around the problem” for active coping and “I gave up the attempt to get what I want” for disengagement coping represented the least relevant items to our particular study. Again, we calculated reliability at the daily level. The average reliability for active coping was .90, and the average reliability for disengagement coping was .71.

Analytical Approach

Our dataset includes daily measures (for up to 20 days) of our study constructs that were provided by a total of 34 different entrepreneurs. That is, the daily data (Level 1) we use to test our study hypotheses are nested within entrepreneurs (Level 2). Consequently, we test our study hypotheses using multilevel analyses that account for the lack of independence among our daily-level measures. Specifically, we use a multilevel approach as it allows us to arrive at valid inferences about the relationships present in our data by producing correct standard errors in the presence of non-independent observations (Bryk & Raudenbush, 1992; Hox, Moerbeek, & van de Schoot, 2010). All multilevel analyses reported in the manuscript were performed in *Mplus 8* using a maximum likelihood estimator (MLR) that is robust to data nonnormality. Table 7 below reports descriptive statistics and correlations among our variables.

Insert Table 7 about here

Consistent with our theorizing, we measured the relationships among appraisals, affect, and coping behaviors at the daily level. Specifically, we asked respondents to assess their appraisal, affect, and coping behaviors, *for that day*, in relation to their previously identified largest source of stress. As a result, we test relationships among day-level measures through tests detailed below. A different research design and modeling approach would have been necessary if we were interested in time-series fluctuations (Kammeyer-Mueller, Judge, & Scott, 2009). Finally, our research follows a similar methodological design as several other studies (Fuller, Stanton, Fisher, Spitzmuller, Russell, & Smith, 2003; Kammeyer-Mueller et al., 2009; Potter, Smith, Strobel, & Zautra, 2002; Judge, Scott, & Ilies, 2006) in terms of using non-lagged level 1 variables to assess stress processes. Thus, the daily level tests utilized for hypotheses 2-3 are appropriate, given our research question, theory, and methodological design.

Our study hypotheses require that we perform two types of multilevel analyses, one set of analyses for Hypothesis 1 and another for Hypotheses 2-3. Hypothesis 1 argues that appraisal varies within-individuals. To test this hypothesis, we began by estimating the ratio of the (a) within individual-to-total variance and (b) between individual-to-total variance in our appraisal measures (largely equivalent to the intra-class correlation coefficient, ICC). These ratios provide an indication of the proportion of variance in daily appraisals that is due to within-person variability and between-person variability, respectively. A ratio of 0 (1) indicates that none (all) of the variance in the appraisal measure occurs at the focal level of analysis. We then sequentially constrained each one of the ratios to be equal to .10 and evaluated the change in model fit due to the addition of the constraint using a chi-square ($\Delta\chi^2$) difference test. A combination of a ratio larger than .10 *and* significant $\Delta\chi^2$ test was used to infer support for Hypothesis 1 because such a

result indicates that more than 10% of the variance in the appraisal measure is due to either changes in day-to-day appraisals (Level 1) or difference in appraisals between individuals (Level 2).⁹

Hypotheses 2-3 were tested by specifying a multivariate, multilevel path model that allows us to simultaneously obtain parameter and statistical significance estimates for all the hypothesized direct and indirect effects. Consistent with recommendations in the multilevel modeling literature (Hox 2002) and the focus of our study on daily effects, Hypotheses 2-3 were tested (1) at the within-person level of analysis, and (2) using group mean-centered scores that control for the potential effects of stable person characteristics on day-level constructs. To ensure model identification and the stability of our multivariate results (which requires that the number of parameters estimated be less than the number of level 2 observations), we did not include additional variables for control purposes in our model.

Test of Hypothesis 1

Hypothesis 1 argues that appraisal varies within individuals. Our results reveal that 61.7% of the variance in challenge appraisal occurs at the within-person (daily) level and the remaining 38.3% of the variance occurs across individuals. In support of Hypothesis 1, the Satorra-Bentler scaled chi-square difference test ($\Delta\chi^2_{1d.f., \text{ within}} = 31.2$ and $\Delta\chi^2_{1d.f., \text{ between}} = 21.7$) confirms that the amount of variance at each level is significantly ($p < .01$) greater than our critical value of 10%. In the case of hindrance appraisal, the data indicate that 66% of the variance occurs at the within-person (daily) level and the remaining 34% occurs at the between-person level. Once again, in

⁹ A comparison of our variance ratios to zero would have provided the most liberal test possible of Hypothesis 1. However, we chose a more conservative critical value (.10) to perform our analysis for two important reasons. First, constraining the ratios to equal zero produces model convergence problems because, in the case of our data, it leads to an extremely poor model fit. Second, multilevel research establishes that ICC values of about .10 indicate that a meaningful proportion of variance is due to the nesting factor (i.e., to Level 2; Glick, 1985; Schneider, White & Paul, 1998). We extend this logic to suggest that meaningful variance in appraisals exists within and across individuals when at least 10% of the variance can be attributed to each level of analysis.

support of Hypothesis 1, the Satorra-Bentler scaled chi-square difference test ($\Delta\chi^2_{1d.f., \text{within}} = 61.8$ and $\Delta\chi^2_{1d.f., \text{between}} = 20.5$) confirms that the amount of variance at each level is significantly ($p < .01$) greater than our critical value of 10%. In sum, our empirical testing reveals that different entrepreneurs can perceive the largest source of stress from their venture differently, and that each entrepreneurs' appraisal of that stressor can also vary from day-to-day.

Test of the Main Effect Hypotheses

We initially fit a multivariate, multilevel model that includes only our hypothesized relationships as conceptualized in Figure 1. Our results indicate that the model provides a relatively good fit to the data ($\chi^2_{9d.f.} = 29.2$, $p < .01$; Root Mean Square Error of Approximation [RMSEA] = .08, and Standardized Root Mean Square Residual [SRMR] = .07; Hu & Bentler, 1999). Results of this first model provide support for all study hypotheses as they reveal significant effects in the expected direction. Further, parameter modification indices indicate that model fit can be improved by freeing two additional paths in the proposed model (challenge appraisal \rightarrow active coping, positive affect \rightarrow disengagement coping). Sequentially freeing these additional paths resulted in a final model that provides a very good fit to the data ($\chi^2_{7d.f.} = 6.3$, $p > .10$; RMSEA = .00, and SRMR = .04), and represents an improvement over the proposed model ($\Delta\chi^2_{2d.f.} = 22.9$, $p < .01$).

Using this final model as our basis, the results reveal that challenge appraisal increases positive affect (H2: $b = .21$, $t = 4.73$, $p < .01$), and positive affect, in turn, increases active coping (H2: $b = .61$, $t = 5.33$, $p < .01$). Similarly, as proposed, the results indicate that hindrance appraisal increases negative affect (H3: $b = .12$, $t = 4.33$, $p < .01$), and negative affect subsequently increases disengagement coping (H3: $b = .18$, $t = 3.16$, $p < .01$). In terms of non-hypothesized effects, the data indicate that challenge appraisal has an additional positive effect on active coping that is not

mediated by positive affect ($b=.20$, $t=3.05$, $p<.01$), and that positive affect is negatively related to disengagement coping ($b=-.09$, $t=2.85$, $p<.01$).

Test of the Indirect Effect Hypotheses

In H2 we propose that positive affect mediates the effect of challenge appraisal on active coping. The results support this hypothesis: $ab=.13$, $t=3.23$, $p<.01$. This indirect effect is in addition to the previously reported direct (or unmediated) effect of challenge appraisal on active coping ($b=.20$, $t=3.05$, $p<.01$), which results in a total effect of challenge appraisal on active coping of $.33$ ($t=5.30$, $p<.01$). The data also provide support for H3 which argued that negative affect mediates the effect of hindrance appraisal on disengagement coping. This indirect effect ($ab=.02$, $t=-2.40$, $p<.05$) occurs in the absence of a main (unmediated) effect of hindrance appraisal on disengagement coping. Finally, the data reveal an additional indirect effect that was not hypothesized: challenge appraisal was found to have a negative indirect effect on disengagement coping that is mediated by positive affect ($ab = -.02$, $t=2.70$, $p<.01$).

Comparison of Proposed and Alternative Models

Consistent with theory, our proposed model suggests that the appraisal of potential stressors leads to an affective response, and ultimately, coping behaviors. However, alternative orderings of our model constructs are also conceivable. For instance, it is possible that a person's feelings on a given day drive their appraisal of potential stressors, ultimately driving them to engage in certain coping behaviors. Hence, we decided to evaluate the relative merit of our proposed model relative to other plausible configurations of our study constructs.¹⁰ Toward that

¹⁰ Although our primary purpose was to see how entrepreneurs' appraisals affected their day-level well-being and coping responses, we are also cognizant of the potential for coping to affect appraisals across time in a recursive manner. Thus, we ran a time lagged model in which active coping and disengagement coping affected challenge and hindrance appraisals one day later. Active coping had non-significant relationships with next-day challenge and hindrance appraisals. However, disengagement coping was negatively linked to hindrance appraisals the next day (i.e., $b = -.13$, $p < .05$), suggesting that

end, we specified and tested five alternative models. The first alternative model is like our proposed model in that appraisal is modeled as exogenous but differs in that we reverse the ordering of the coping and affect constructs (i.e., Alternative Model 1: appraisal → coping → affect; see Figure 2b). Alternative Model 2 (affect→appraisal→coping) and Alternative Model 3 (affect→coping→appraisal) both use affect as the exogenous variable but differ in terms of the ordering of the coping and appraisal constructs (see Figure 3). The last two alternative models, Model 4 (coping→affect→appraisal) and Model 5 (coping→appraisal→affect) both specify coping as the exogenous construct (see Figure 4).

To account for all possible relationships between model constructs, fully-saturated models were specified when testing the alternative models (to ensure comparability, a fully-saturated variant of our proposed model was also tested). Because the models are fully saturated, differences in model fit are only possible across models that employ alternative exogenous variables; hence, the fit for the (fully saturated) proposed model and Alternative Model 1 will be identical, Model 2 and 3 will be identical, and Model 4 and 5 will be identical. Despite yielding identical fit statistics for some models, this analysis is particularly useful for helping us determine which construct (appraisal, affect or coping) should be treated as exogenous in our modeling (which is the most critical of distinctions).

We used the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) to assess the relative fit of the competing models, with lower AIC and BIC values indicating better relative model fit (e.g., Burmesiter-Lamp, Lévesque & Schade, 2012; Vandor & Franke, 2016). Unlike other indicators of relative model fit (e.g., $\Delta\chi^2$), AIC and BIC are appropriate for comparing non-nested competing models (Lian, Ferris, Morrison, & Brown, 2014), like the ones we test here.

disengagement coping strategies are efficacious in reducing the accessibility of subsequent hindrance stressor appraisals.

While AIC and BIC are both based on the likelihood function and tend to provide convergent answers, they are commonly used together to evaluate model fit (e.g., Mitteness, Sudek & Cardon, 2012) because they are rooted in different theoretical assumptions (AIC assumes the models tested only approximate reality while BIC considers the true model to exist among the tested models), and the two indices differ in the extent to which they penalize lack of parsimony, with BIC favoring simpler models than AIC (Vrieze, 2012).

As Table 8 reveals, the models (proposed model and Alternative Model 1) that employ appraisal as the exogenous construct (AIC = 2592.84 and BIC = 2715.55) provide a better fit to the data than models which specify either coping as the exogenous construct (AIC = 3329.56 and BIC = 3452.28) or affect as the exogenous construct (AIC = 3479.00 and BIC = 3601.71). These results thus support our theoretical contention that appraisal is exogenous within our model and affirm the superiority of our proposed model relative to Alternative Models 2-5. This analysis, however, does not address whether our proposed model is superior to Alternative Model 1, which also specifies appraisal as exogenous but reverses the ordering of the coping and affect constructs. We thus performed a direct comparison of these two models. To do so, we first used the results from the fully saturated model to specify the best-fitting version of Alternative Model 1. The fit of this model (AIC = 2600.89; BIC = 2692.92) is poorer than that of the best-fitting proposed model (AIC = 2587.32; BIC = 2683.19), thus favoring the causal order implied by our conceptual model (Figure 1). In addition, the results reveal that the mediational structure implied by Alternative Model 1 (with coping as the intervening variable) is poor as we find only one significant indirect effect. In contrast, the mediating role of affect suggested by our proposed model received stronger support; specifically, we find that affect mediates three of the effects of appraisal on coping. In sum, our analyses provide strong evidence in support for the relative superiority of the proposed

model when compared to the alternative construct configurations that are possible with our data (Iacobucci, Saldanha & Deng, 2007).

Insert Table 8 and Figures 2, 3, and 4 about here

DISCUSSION

Despite the practical and normative importance of researching stress and well-being (Soleil, 2016), and the combined efforts of many scholars (Baron et al., 2016; Boyd & Gumpert, 1983; Cardon & Patel, 2015), our understanding of entrepreneurial stress remains deficient. However, several stress theories point to the value of cognition and appraisals, in particular, in furthering our understanding of how entrepreneurs interpret and respond to the stressors they encounter while operating their ventures. Consequently, the present study highlighted the role of variation in daily level cognition (Lazarus & Folkman, 1984) to explore how entrepreneurs' appraisals influence affective and behavioral coping outcomes. Incorporating a daily diary study of entrepreneurs, we found significant support for our hypotheses, and several theoretical and applied implications derive from our exploration of entrepreneurial stress.

Theoretical Implications

Our manuscript makes three important contributions to theory. First, we develop appraisal theory by exploring its downstream affective and behavioral consequences. Specifically, we provide evidence that daily-level appraisal has an indirect effect on coping behaviors through affect. While this result builds upon the transactional model of stress (Lazarus & Folkman, 1984) and the cognitive perspective of entrepreneurship (Grégoire, Corbett, & McMullen, 2011), it offers novel insights to the entrepreneurial stress literature by demonstrating how entrepreneurs adapt to and manage their largest sources of stress each day. Although other scholars have utilized stress

theory to describe entrepreneur outcomes and stress-management processes (e.g., the Job Demand-Control model, Hessel et al., 2017; Conservation of Resources, Lanivich, 2015), we add a cognitive lens through our test of the transactional model of stress (Lazarus & Folkman, 1984) that highlights the critical role of entrepreneur cognitive appraisals as a key influence affecting their subsequent EWB and coping. In this regard, we offer firm grounding in a well-supported and validated theory of stress, paving an opening for future scholars to further clarify the role of stress theory in entrepreneurship, and opening opportunity for bridges between organizational behavior and entrepreneurship scholars.

Second, we challenge the belief that stressors can be, *a priori*, categorized as challenge or hindrance (Brief & George, 1995). By modeling and measuring appraisal (Lazarus, 1991a; 1993; Lazarus & Folkman, 1984), we find evidence that entrepreneurs appraise stressors differently from one another and from their own prior appraisals of stressors in the past. This exemplifies the concern raised by Rosen, Chang, Djurdjevic, and Eatough (2010) regarding the use of aggregation approaches to appraisal (see Cavanaugh et al., 2000; LePine, LePine, & Jackson, 2004; LePine et al., 2005; LePine, Zhang, Crawford, & Rich, 2016). Furthermore, our results suggest that the *a priori* categorization of stressors may result in consistent results as a methodological artifact that does not necessarily reflect the actual categorization and appraisal of stressors by entrepreneurs at the day level. Thus, our results suggest future research in the organizational and entrepreneurial literature should use such approaches with caution; instead, it may be better to incorporate appraisal into stress models.

Third, consistent with the theoretical predictions of Lazarus (1993), we show that appraisal plays a fundamental role influencing the well-being and behavioral coping of entrepreneurs. Specifically, daily-level appraisal influences the daily-level affect entrepreneurs experience, a core

element of EWB (Wright, 2014), which then impacts how entrepreneurs choose to cope each day in response to the stressors they have encountered. Aside from scholarly calls to explore the role of affect “in the middle” of the entrepreneurial process (Cardon et al., 2012), our findings have critical implications for research on entrepreneurial affect. While we know that excitement for a venture matters (Foo et al., 2006), that passion drives entrepreneurial success (Cardon et al., 2009), that emotions can drive motivation for entrepreneurial efforts (Foo, et al., 2009), and that psychological resources are necessary to regulate emotional fluctuations (Uy et al., 2017), we offer insight into the source of these affective outcomes: cognitive appraisal. Thus, as we continue our scholarly discussions around the role of affect in the stress process, it will be important to consider the effects of appraisal as a critical precursor to affect.

Future Directions

While these findings aid greatly in our understanding of stress, it is possible that individuals appraise sources of stress in ways other than as a challenge or hindrance. The work of Kelly (1955) suggests that individuals develop their own personal construct systems, or, beliefs, values, and knowledge about the way the world works. Thus, it is possible that the way entrepreneurs conceptualize stress is more complex; for example, incorporating aspects such as predictability, controllability, chronic vs. episodic, or major stressors vs. hassles (McGrath & Beehr, 1990). Thus, ample opportunity exists to extend our work on entrepreneurial cognition and stress by studying entrepreneurs’ cognitive maps regarding stress, which may offer important evidence regarding how, why, and when entrepreneurs vary in their appraisals.

Indeed, even the transactional model of stress (Lazarus & Folkman, 1984) suggests that appraisal is more complicated than dichotomous challenge and hindrance categories. Our study focused on broadly understanding the impacts of positive or negative appraisals of stressors, but a

closer look at how entrepreneurs engage with stressors could explore specific considerations that influence appraisal. For example, individuals appraise stressors in terms of goal relevance, goal congruence, and type of ego-involvement; in addition, individuals assess blame or credit, coping potential, and future expectations (Lazarus, 1991a). In addition, prior research shows that in some situations negative emotion can provide the impetus for action (Wolfe & Shepherd, 2015). Although our data does find this relationship, future research might explore conditions under which negative emotion spurs action. Given the opportunity of core relational themes to tie specific appraisals to emotions (Lazarus, 2000), delving deeper into the entrepreneurial stress process would provide rich insights into the emotional outcomes of entrepreneurs as opposed to only affective outcomes (Byrne & Shepherd, 2015; Cardon et al., 2012; Patzelt & Shepherd, 2011).

The two future directions highlighted above have inherent methodological complexity, which we acknowledge is one reason that they have not been explored in entrepreneurial stress literature to date. In addition, the growing trend of considering stress processes generalizable across a wide number of occupations (Brief & George, 1995; LePine et al., 2005) lures a temptation to thoughts that “entrepreneurs are similar to other occupations,” thus giving entrepreneurial stress scholars a (potentially!) false conclusion about how stress processes operate for this group. Yet, (1) qualitative evidence from the organizational stress literature has already revealed that stress processes operate quite differently across occupation, gender, and country (Mazzola, Schonfeld, & Spector, 2011), (2) a considerable amount of accomplished scholars have widely agreed that appraisal is not a characteristic of a stressor, but rather a perception of an individual subject to change as environments and/or individuals change (a woefully short list: Ellsworth, 1991; Lazarus, 1968; Scherer, 1999), and (3) the scholarly community has been warned against such broad generalizations of stress processes (Rosen et al., 2010). Given that we know that stress is highly

prevalent for entrepreneurs (Boyd & Gumpert, 1983; Cardon & Patel, 2015), and the limited qualitative work on entrepreneurial stress suggests vastly different stress processes given the particular circumstances of the entrepreneur (Berkowitz & Perkins, 1984; Boyd & Gumpert, 1983; Edralin, 2013; Gumpert & Boyd, 1984), this is not a phenomenon we can afford to be wrong about. As such, we propose more in-depth analyses of entrepreneurs' stress, specifically by combining quantitative data with qualitative approaches such as stress incident response, daily diary, interviews, focus groups, first-hand observation, and participant observation (Mazzola et al., 2011). Although we suspect that there is at least as much variation between entrepreneurs than between entrepreneurs and other groups (e.g., managers) (cf. Gartner, 1988), future scholars employing such analyses may precipitate a better understanding of entrepreneurs' stress, and how they may differ from each other and from others (i.e., employees or managers).

Given that most entrepreneurial ventures are founded by new-venture teams as opposed to individuals (Kamm, Shuman, Seeger, & Nurick, 1990; Klotz, Hmieleski, Bradley, & Busenitz, 2014), studying stress processes in entrepreneurship should likely consider the role of the venture team. While appraisal scholars have considered social processes in influencing stress (e.g., see Chapter 9: Social Influence, in Lazarus, 1991a), the transactional model of stress has remained an individual level theory. Yet, recent work on entrepreneurial passion suggests that the phenomenon exists not only at the individual-level, but also the new-venture team level (Cardon, Post, & Forster, 2017). While there is a growing body of literature that examines the role of appraisal and affect in organizational groups (Chong, Eerde, Chai, & Rutte, 2011; Chong, Eerde, Rutte, & Chai, 2012; Pearsall, Ellis, & Stein, 2009), this literature has largely assumed that individual team members make similar appraisals. Given the weak context of entrepreneurship (Klotz et al., 2014;

Mischel, 1977), we wonder if such assumptions will hold true for new-venture teams and implore scholars to consider this point more thoroughly.

Finally, there is substantial opportunity to more clearly delineate potential differences in stress processes between entrepreneurship and other organizational contexts. For example, a swath of literature has identified uncertainty as a key differentiator of entrepreneurial contexts (Engel, Dimitrova, Khapova, & Elfring, 2014; Hmieleski, Carr, & Baron, 2015; Lanivich, 2015; McKelvie, Haynie, & Gustavsson, 2011; McMullen & Shepherd, 2006; Schindehutte, Morris, & Allen, 2006). Yet, uncertainty is not inherently a dimension of appraisal, because it can be regarded as a threat by some individuals, while appraised as a sign of hope for change by others (Lazarus, 1991a). Thus, if uncertainty is a foundational feature of entrepreneurship, this may be reason to propose that entrepreneurs have larger variability in appraisals than do those in non-entrepreneurial organizational settings. This, and other potential differences in stress processes between entrepreneurs and other organizational groups, would be quite interesting for future research to explore.

Practical Implications

There are several practical implications that derive from our investigation. First, our results suggest that stress processes differ across individuals. As a result, helping entrepreneurs with stress must entail an in-depth understanding of the environmental and individual level factors relevant to each entrepreneur. For example, the same stressor can elicit different appraisals depending on an assessment of self-blame (e.g., guilt) or others-blame (e.g., anger; Lazarus, 1991a). Some individuals may be more prone to blaming others as opposed to themselves; having this understanding could precipitate an actionable plan to help such entrepreneurs in recognizing their cognitive bias towards blaming others, and how it may influence their affect and behaviors. Thus,

understanding the cognitive nuances of an entrepreneur will aid greatly in developing robust coping strategies.

Second, our results suggest that stress processes differ within individuals. Although there is evidence that appraisals vary across short time intervals (Crum, Salovey, & Achor, 2013), our research provides additional evidence that entrepreneurship is inherently dynamic. Specifically, we found that appraisal of the single most significant source of stress for entrepreneurs varied sometimes considerably, suggesting that entrepreneurs appraise and cope with a complex and changing set of stressors when managing their ventures. By extension, this finding suggests that coping behaviors that work for entrepreneurs one day may not be effective the next, and thus our suggestions to entrepreneurs cannot be as simple as “do X to achieve Y”, and instead must emphasize entrepreneurs’ ability to gain awareness of their thoughts, affect, and behaviors to actively regulate them with a level of consistency.

Conclusion

In summary, previous literature on entrepreneurial stress, while initiating a preliminary understanding of this context, has not considered the important role of appraisal. We find compelling support for the transactional model of stress (Lazarus & Folkman, 1984), paving the way for deeper explorations into the cognitive side of entrepreneurs’ stress. In so doing, we contribute to both the entrepreneurial and organizational stress literature by bringing the role of appraisal back into the conversation. Our findings offer a revival of a forgotten perspective on stress that appraisal matters (Lazarus, 1993).

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APPENDIX B

Table 7: Construct Descriptive Statistics and Correlations

Constructs	Mean	S.D.	1	2	3	4	5	6
1. Challenge Appraisal	3.38	1.48	1					
2. Hindrance Appraisal	2.83	1.24	0.15	1				
3. Positive Affect	3.37	0.92	0.36	0.12	1			
4. Negative Affect	1.54	0.63	-0.06	0.24	-0.08	1		
5. Active Coping	2.26	1.20	0.41	0.11	0.55	-0.03	1	
6. Disengagement Coping	0.32	0.55	-0.02	0.07	-0.16	0.20	-0.13	1

Notes: n=342. Correlations are for the daily (group mean centered) measures of the constructs on which model testing was performed. Correlations equal to or larger than $|\cdot 11|$ are statistically significant ($p < .05$). n=342.

Table 8: Summary of Model Fit Indices

		Relative Model Fit	
Antecedent Variables	Models Tested	AIC	BIC
Appraisal	Proposed Model	2592.84	2715.55
	Alternative Model 1		
Affect	Alternative Model 2	3479.00	3601.71
	Alternative Model 3		
Coping	Alternative Model 4	3329.56	3452.28
	Alternative Model 5		

Notes: AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion. Smaller AIC and BIC numbers indicate better relative model fit. Because the models tested are fully saturated (see Methods section), models with the same antecedent variables (e.g., Alternative Model 2 and Alternative Model 3) provide an identical fit to the data.

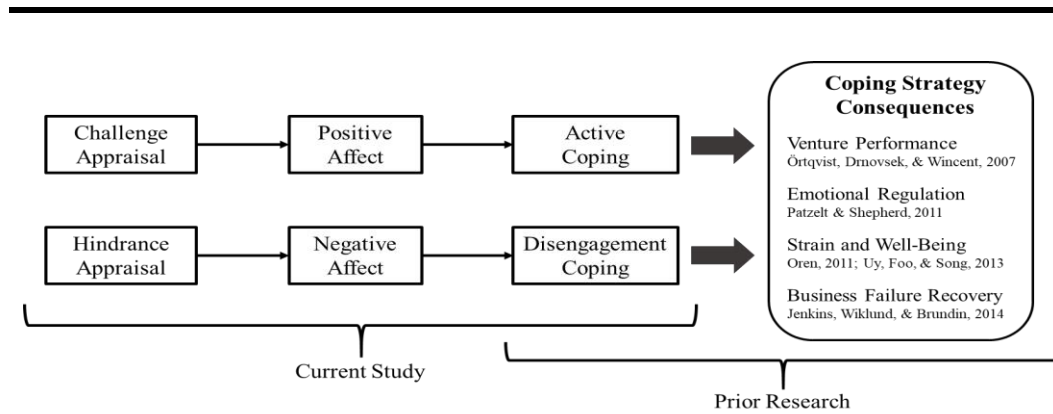


Figure 1: Conceptual Model

Note: Studies listed in the figure are only intended to illustrate (rather than be an exhaustive listing of) prior research that has found a relationship between entrepreneur coping strategies and each outcome noted.

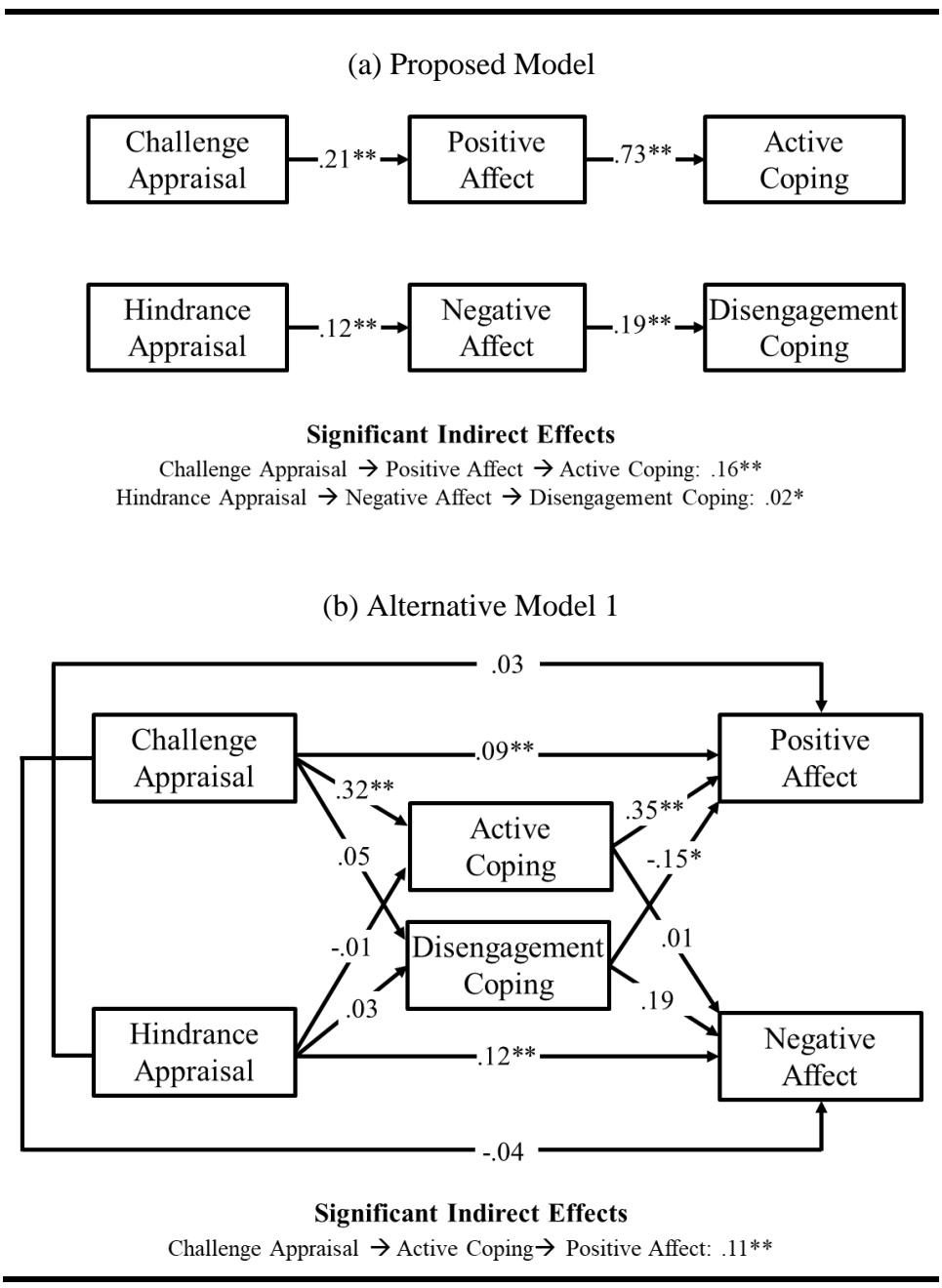


Figure 2: Appraisal as Antecedent

** $p < .01$; * $p < .05$ (all significance tests two-tailed, $n = 342$)

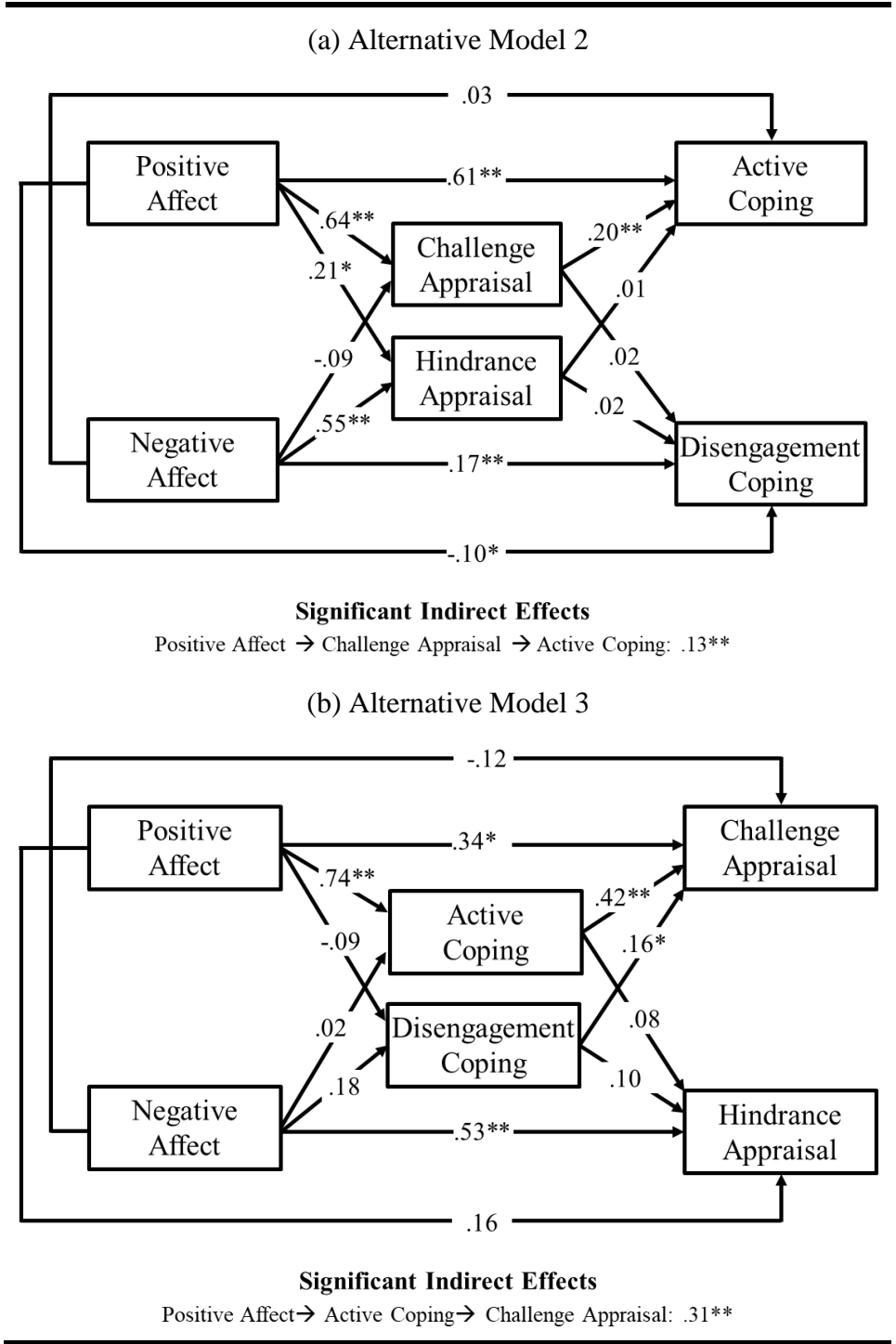


Figure 3: Affect as Antecedent

** $p < .01$; * $p < .05$ (all significance tests two-tailed, $n = 342$)

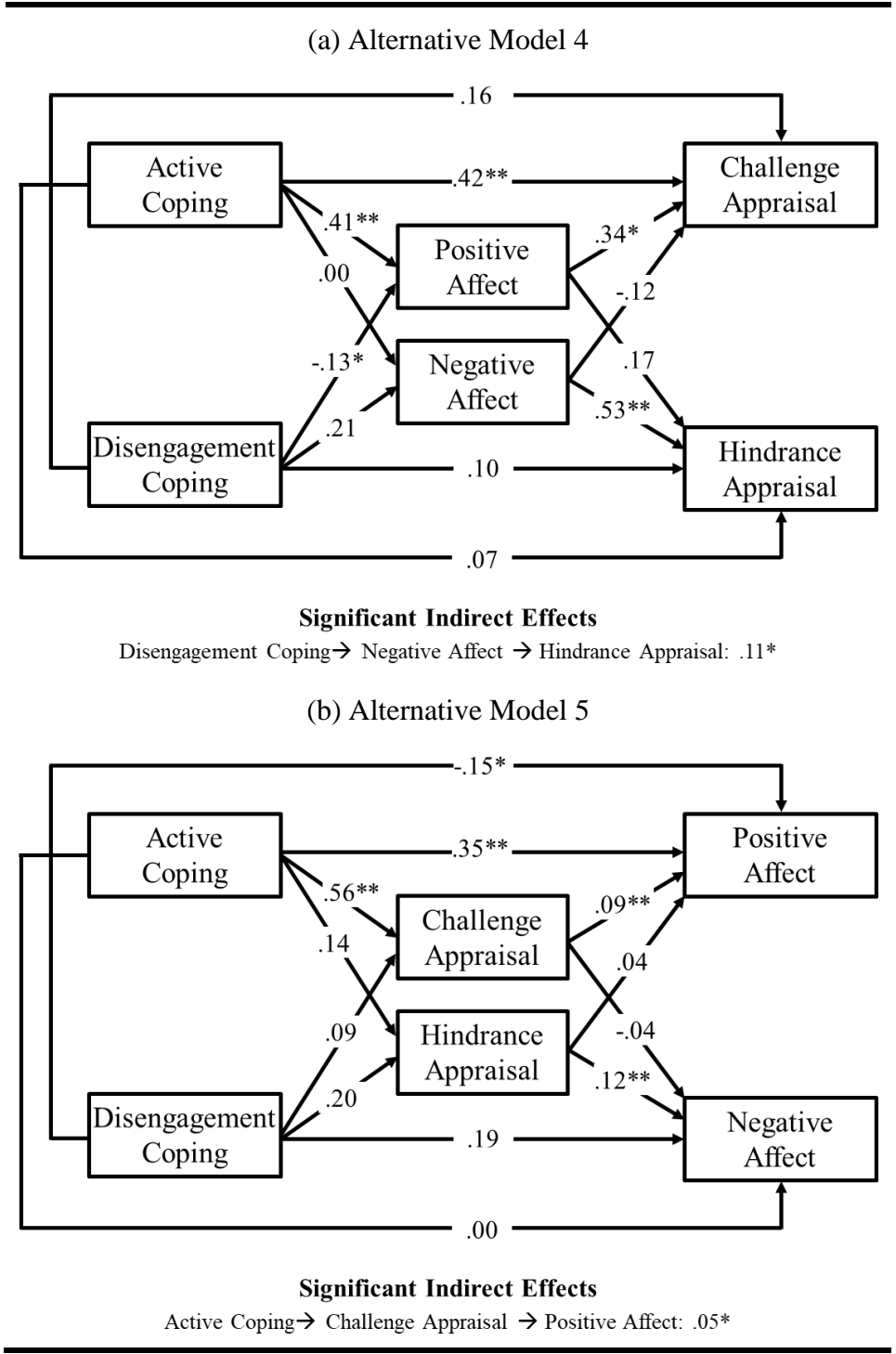


Figure 4: Coping as Antecedent

** $p < .01$; * $p < .05$ (all significance tests two-tailed, $n = 342$)

APPENDIX C

Appraisal

Almost anything can be a source of stress to someone at a given time, and individuals perceive potential sources of stress differently. Some sources of stress as perceived as work-related demands or circumstances that, though potentially stressful, have associated opportunity for potential gains. These are referred to as opportunity (challenge) stressors. Other sources of stress are perceived as work-related demands or circumstances that tend to constrain or interfere with an individual's work achievement and do not tend to be associated with potential gain. These are referred to as hindrance stressors. The situation you briefly described at the orientation of this study as a source of stress is a potential source of opportunity (challenge), hindrance, or both. Please rate the situation by the degree of opportunity (challenge) and the degree of hindrance you perceive it to mean to you, **today**¹¹:

1. The stressor I described was a source of opportunity for me today
2. The stressor I described was a hindrance to me today

Daily Positive and Negative Affect

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way, **today**:

1. Upset
2. Hostile
3. Alert
4. Ashamed
5. Inspired
6. Nervous
7. Determined
8. Attentive
9. Afraid
10. Active

Coping (Active and Disengagement)

1. I concentrated my efforts on doing something about it
2. I admitted to myself that I can't deal with it, and quit trying
3. I took additional action to try to get rid of the problem
4. I just gave up trying to solve the problem
5. I did what had to be done, one step at a time
6. I reduced the amount of effort I'm putting into solving the problem

¹¹ In addition to asking entrepreneurs if the stressor was a source of opportunity or hindrance for them, we also asked if the stressor was a source of opportunity or hindrance to their *business*. To stay closer to our theorizing, we focused our analysis on only the "for me" questions and not the "for my business" questions.

CHAPTER 3

**INCREASING THE UTILITY OF APPRAISAL TO THE ORGANIZATIONAL
SCIENCES: AN INTRODUCTION OF COLLECTIVE APPRIASAL**

ABSTRACT

The purpose of this paper is to develop a theoretical conceptualization of *collective appraisal* (i.e., the extent to which team members agree concerning which stressors are relevant to the team and how to respond to those stressors) to better understand the way that occupational teams, top management teams, and new venture teams function as they seek their respective goals and adapt to encountered stressors. To accomplish this, we apply concepts from the Cognitive Activation Theory of Stress (CATS; Meurs & Perrewé, 2011; Ursin & Eriksen, 2004) to develop a dynamic model of collective appraisal and its influences on team members. We argue that collective appraisal is both sought by teams but difficult to achieve in practice; thus, we outline both short-term and long-term effects resulting from decreases in collective appraisal (i.e., increases in disagreement). We then highlight constraints that distinguish the effects of decreases in collective appraisal between occupational teams, top management teams, and new venture teams. We close the paper by highlighting contributions to appraisal and team conflict literature.

INTRODUCTION

An abundance of literature has shown conclusively that *appraisal* (i.e., an individual's assessment of the relevance of a possibly stressful situation to their own goals and their likelihood of effectively coping with it) plays an integral role affecting how people experience stress (e.g., Arnold, 1960; Cooper, Dewe, & O'Driscoll, 2001; Harris, 1991; Lazarus & Folkman, 1984; Paterson & Neufeld, 1987). Appraisal is meaningful because the way people interpret events determines how objective sources of stress (hereafter called *stressors*) lead to specific behaviors (Mishra & Spreitzer, 1998). Given the importance of understanding how individuals behave as they perform their jobs, help firms develop and utilize strategic resources, and identify and exploit business opportunities, organizational behavior (e.g., Perrewé & Zellars, 1999), strategy (e.g., Dutton & Jackson, 1987), and entrepreneurship (e.g., Jenkins, Wiklund, & Brundin, 2014) scholars have all borrowed concepts from appraisal to varying degrees.

However, while prior work on appraisal has been insightful, our current conceptualization of appraisal exists limits the ability of the organizational sciences to effectively utilize it for understanding phenomena of interest. Specifically, to the best of our knowledge, appraisal has only been theorized at the individual level, and a small number of studies that have empirically explored appraisal at the team level do not explain how appraisal should be conceptualized within a team setting.¹² Organizational behavior, strategy, and entrepreneurship phenomena often occur within team-based structures (e.g., occupational teams (OT), top management teams (TMT), and new venture teams (NVT), respectively). Further, we know that cognition plays an important role in how teams communicate, process information, and act together (e.g., Blatt, 2009; Klotz, Hmieleski, Bradley, & Busenitz, 2013). Nevertheless, despite

¹² See Chong, Eerde, Chai, & Rutte, 2011; Chong, Eerde, Rutte, & Chai, 2012; Pearsall, Ellis, & Stein, 2009

recognition regarding the prevalence of team-based structures and importance of their collective processes, our existing conceptualization of appraisal provides limited value for understanding behavior in any of these settings because when phenomena occur within teams, they may be fundamentally different than when they occur for an individual.

Consequently, the purpose of this paper is to develop a theoretical conceptualization of *collective appraisal* (i.e., the extent to which team members agree concerning which stressors are relevant to the team and how to respond to those stressors) to better understand the way that OTs, TMTs, and NVTs function as they seek their respective goals and adapt to encountered stressors. To accomplish this, we apply concepts from the Cognitive Activation Theory of Stress (CATS; Meurs & Perrewé, 2011; Ursin & Eriksen, 2004) to develop a dynamic model of collective appraisal and its influences on team functioning. We argue that collective appraisal is both sought by teams but difficult to achieve in practice; thus, we outline both short-term and long-term effects resulting from decreases in collective appraisal (i.e., increases in disagreement). We then highlight contextual features that distinguish the way our model operates within OTs, TMTs, and NVTs. We close the paper by highlighting contributions to appraisal research and three important theoretical developments that result from collective appraisal: clarification of team conflict, integrations with related psychological team constructs, and distinctions between transactional and transformational leadership.

TEAM APPRAISAL: AN ORIGIN STORY

We now briefly define appraisal and its components at the individual-level. Following this, we explain the stress process proposed by CATS, which incorporates and emphasizes appraisal (Ursin & Eriksen, 2004). Then, we develop our conceptualization of collective appraisal, and its counterpart, collective appraisal separation.

Individual-Level Appraisal Within the CATS

An appraisal of a stressor consists of primary and secondary components, each of which are individual perceptions as opposed to objective conditions (Lazarus, 1966, 1991, 1993, 1999; Lazarus & Folkman, 1984, 1987). First, *primary appraisal* entails an individual's assessment of the stressor's personal significance to their goals, commitments, values, and beliefs about themselves and the world (hereafter referenced only as goals; Lazarus, 2001). The assessment entails: (1) goal relevance, or the extent to which a stressor meaningfully relates to a personal goal; (2) goal congruence, or the extent to which the stressor is facilitating or debilitating towards the achievement of that goal; and (3) type of ego-involvement, the extent to which the stressor relates to conceptions of self- or social esteem, moral values, or ego-ideals. Thus, primary appraisal helps an individual understand not only if a situation is important to them, but precisely how it relates to them (Dewe, 1991; Lazarus, 1993).

Secondary appraisal focuses on evaluating the options for coping with the stressor (Lazarus & Launier, 1978), and includes: (1) blame and credit, or the extent to which someone or something is responsible for the negative (blame) or positive (credit) circumstance; (2) coping potential, or the extent to which the individual believes they are capable of addressing the stressor effectively; and (3) future expectations, or the extent to which the outcome of the chosen coping path is expected to be good or bad. Thus, secondary appraisal determines how an individual will respond to the stressor (Dewe, 1991; Lazarus, 1993). An implicit assumption in this primary and secondary appraisal framework is that individuals seek to achieve their goals, and thus form primary and secondary appraisals in relation to their goals and respond in accordance with the approach personally believed to be the best response option available (Perrewé & Zellars, 1999; Smith & Lazarus, 1990).

While appraisal itself has been studied extensively (see Fernando, Kashima, & Laham, 2017 for a review), it is also an important part of the CATS framework, which proposes a 4-step stress process to explain the biological effects of short-term and long-term exposure to stressors (Meurs & Perrewé, 2011; Ursin & Eriksen, 2004). The first step of the CATS process is the existence of an objective environmental stressor. Stressors are thus only *potentially* stressful because they cannot produce a stress response unless they are interpreted by an individual or act on the individual in some way (Cooper et al., 2001; Lazarus & Folkman, 1984). For example, a late employee, an angry customer, or new legislation are objective environmental stressors that have the possibility of effecting individuals around it.

In the second step, an individual appraises the objective environmental stressor, which results in a subjective and personally relational stressor (Meurs & Perrewé, 2011; Ursin & Eriksen, 2004). This works in accordance with our description of appraisal above (Lazarus, 2001). Through primary and secondary appraisal, individuals form two expectancies: The first is a *stimulus expectancy*, or, “the predictability that a stressor will be followed by a particular event” (Meurs & Perrewé, 2011: p. 1061). The second is an *outcome expectancy*, which ties possible responses to the stressor to expected outcomes from that response. Appraisals and resulting expectancies are influenced by prior experiences with the same or similar stressors (Anshel, Robertson, & Caputi, 1997; Crum, Salovey, & Achor, 2013).

In the third step, individuals choose a response and respond to the stressor based on appraisals (e.g., Folkman & Lazarus, 1985; Fugate, Harrison, & Kinicki, 2011; Lazarus, 1993; Lowe & Bennett, 2003). When one alternative is chosen, its outcome expectancy can be “positive (i.e., coping), negative (i.e., hopeless), or no (i.e., helpless) expectancy” (Meurs & Perrewé, 2011: 1050; Ursin & Eriksen, 2004). When an outcome expectancy is positive, the

individual is *coping*, defined as the anticipation “that a chosen response to a stressor will lead to a positive outcome” (Meurs & Perrewé, 2011: 1050). Conversely, when the chosen response to the stressor is expected to lead to a negative outcome, it reflects *hopelessness* because one expects to be worse off from the chosen response (Ursin & Eriksen, 2004). Finally, when the chosen response to the stressor is expected to have no impact on the way the stressor will affect the individual, this is equivalent to *helplessness* because there is no perceived control over the situation (Maier & Seligman, 1976).

In the last step, after responding to the stressor, feedback is received regarding the effectiveness of the response (Meurs & Perrewé, 2011; Perrewé & Zellars, 1999; Ursin & Eriksen, 2004). This feedback can change appraisal (i.e., *reappraisal*) and expectancies of the stressor, causing different responses to it over time (Lazarus, 1993, 1994). However, this process may iterate several times, and the length of time in which an individual must deal with a stressor influences the outcomes on that individual’s well-being (Ursin & Eriksen, 2004). Thus, CATS propose that health is not meaningfully damaged unless there is sustained engagement with the stressor. Thus, stressors have two different types of effects on individuals: training (i.e., short-term effects) and straining (i.e., long-term effects; Ursin & Eriksen, 2004). We review each, below.

Training effects reflect minor and non-lasting effects of short-term engagement with a stressor response (Meurs & Perrewé, 2011; Ursin & Eriksen, 2004). Training effects are necessary outcomes of orienting oneself to a stressor and responding to it and as a result they are not inherently negative in nature (Ursin & Eriksen, 2004). Instead, training effects are productive forces that allow individuals to overcome stressors, such as elevations in heart rate before a presentation, which develops greater focus and attention to detail. Conversely, *straining effects*

are major and lasting effects of long-term engagement with a stressor (Meurs & Perrewé, 2011; Ursin & Eriksen, 2004). Straining effects are negative in nature for the well-being and functioning of the individuals who experience them (Ursin & Eriksen, 2004). They occur when individuals are exposed to stressors for too long without adequate time for resource recovery (Ursin & Eriksen, 2004).

In review, appraisal consists of primary (i.e., a stressors personal significance to goals) and secondary (i.e., options for responding to the stressor) components (Lazarus, 2001) and is integral to the 4-step stress process (CATS) which explains biological effects of short-term and long-term exposure to stressors (Meurs & Perrewé, 2011; Ursin & Eriksen, 2004). The first step in CATS is the existence of an objective environmental stressor, which could *potentially* be stressful (Cooper et al., 2001; Lazarus & Folkman, 1984). The second step is appraisal, which translates the objective environmental stressor to a subjective and personally relational stressor (Lazarus & Folkman, 1984; Lazarus, 1993). The third step is choosing a response based on outcome expectancies, which can be “positive (i.e., coping), negative (i.e., hopeless, or no expectancy (i.e., helpless)” (Meurs & Perrewé, 2011: 1050). In the final step, feedback initiates reappraisals and further adaptation (Lazarus, 1993, 1994; Perrewé & Zellars, 1999). Short-term engagement with stressors produces training effects, which are minor and non-lasting; conversely, long-term engagement with stressors produces straining effects, which are negative for well-being and functioning (Meurs & Perrewé, 2011; Ursin & Eriksen, 2004). With this individual level stress framework outlined, we now develop the contents of collective appraisal in order to consider how the CATS framework applies to team settings.

The Content of Collective Appraisal

Collective appraisal is the extent to which team members agree concerning primary and secondary appraisal. Collective appraisal is a *compositional* construct in that it “represent(s) the higher-level construct as a variance of lower level entity characteristics” (Mathieu, Maynard, Rapp, & Gilson, 2008: p. 433). This implies that lower level entities (i.e., each individual team member) are weighted equally in terms of influence on collective appraisal (Kozlowski & Klein, 2000). We contend that the ideal scenario for teams (which is practically almost never achieved) is that team members: (1) agree about the significance of stressors to the team (i.e., primary appraisal) and (2) the best alternatives for responding (i.e., secondary appraisal). Of course, it is possible that teams can disagree about one or both facets of appraisal. For example, team members may agree a stressor is important to deal with but disagree about the proper way of doing so. In other instances, it may be easy to find agreement on how the team could respond to a stressor, but difficult to find agreement regarding the necessity to address the stressor at all. Finally, there may be instances where team members cannot find agreement on either the significance of the stressor nor how to address it.

Agreement as an ideal scenario is reflected heavily in organizational science identity literature which considers shared identity integral to unified organizational action in the wake of ‘stressors’ (i.e., a corporate spin-off, Corley & Gioia, 2004; homelessness, Dutton & Dukerich, 1991) and the role of discourse in reaching high agreement (Hardy, Lawrence, & Grant, 2005). It is also reflected through extensive literature highlighting the motivational forces to achieve a sense of belonging with others (c.f., Baumeister & Leary, 1995). By suggesting it is ‘ideal’ to have agreement on primary and secondary appraisal, we are not referencing a performance outcome, but rather, the training and straining effects on those in the team.

For example, a small to moderate amount of disagreement about the appropriate response to stressors can be an important way to generate new ideas and solutions, thus enhancing team performance (Amason, 1996; Schweiger, Sandberg, & Rechner, 1989). Nonetheless, to the extent team members disagree, training, and eventually straining, effects will occur. Since straining effects are dysfunctional, high collective appraisal is ideal because it minimizes the likelihood of experiencing straining effects. Thus, we argue that the equilibrium teams strive to achieve is high collective appraisal, and deviations from high collective appraisal produce training or straining effects.

Indeed, it is also clear that it is rare for teams to *always* agree (hence the need for team conflict theories; e.g., Gersick, 1988, 1989; Tuckman, 1965). Thus, it follows that teams will inevitably experience diversity in appraisal (as in, less collective appraisal). There are three different types of diversity (see Harrison & Klein, 2007 for a comprehensive review): separation, variety, and disparity, and each has its own meanings, statistical shape at maximum or minimum diversity, and predicted outcomes (Harrison & Klein, 2007). As a result, being precise about which type of diversity we are referencing is important. We propose that collective appraisal diversity reflects *separation*, meaning that it is a “composition of differences in (lateral) position or opinion among unit members, primarily of value, belief, or attitude; disagreement or opposition” (Harrison & Klein, 2007: p. 1203).¹³

In other words, separation represents differences in how individual team members appraise a stressor. Thus, at minimal levels of collective appraisal, collective appraisal separation is

¹³ One notable meaning of this definition is that leader appraisals are not weighted differently than subordinate appraisals. This assumption would be problematic if we were predicting the *behavior* of teams in responding to stressors, because leaders have a disproportionate influence on the behavior of the team. However, we contend it is less problematic when attempting to observe the consequences of collective appraisal separation on the outcomes explored in this manuscript.

maximized, representing a bimodal distribution whereby the NVT is split into two groups with differing viewpoints (Harrison & Sin, 2006). In other words, one group believes the stressor is irrelevant to team goals and impossible to effectively respond to anyway, whereas another group believes the stressor is exceedingly relevant to team goals and envisions a viable path for coping. Conversely, at *minimum separation*, all team members agree about primary and secondary appraisal, meaning collective appraisal is high. Finally, *moderate separation* occurs when team members show only some agreement. For example, some team members may agree about primary or secondary appraisal, with a few that are differentiated from the group. Or, with moderate separation it is also possible that all team members disagree with one another. We henceforth refer to *collective appraisal separation* as representing the extent of disagreement in appraisal and use this conceptualization to propose the influence of appraisal on team functioning, below.

THE EFFECTS OF COLLECTIVE APPRAISAL SEPARATION ON TEAM EFFECTIVENESS

We contend that collective appraisal separation effects team effectiveness through training (i.e., short-term deviations) and straining (i.e., long-term deviations) effects on team members or the team as a whole. *Team effectiveness* is defined as high performing (i.e., the production of team outputs that are acceptable to relevant stakeholders) and highly viable (i.e., team members are satisfied and willing participants in the team; Hackman, 1987; Sundstrom, De Meuse, & Futrell, 1990) team functioning. Training and straining effects occur from *intragroup conflict* (i.e., awareness of discrepancies or incompatible desires, Boulding, 1963; Jehn, 1994). Given the regularity of conflict in organizational settings (Mazzola, Schonfeld, & Spector, 2011) we contend that high collective appraisal is difficult to achieve in practice. This is one reason that research attempting to understand intragroup conflict is popular and abundant (e.g., Wall &

Callister, 1995; Wit, Greer, & Jehn, 2012). Further, some types of conflict, when encountered at ideal times, can be helpful towards facilitating discussions of different concepts and ideas that may lead to better team decisions and performance (e.g., Jehn, 1994, 1995, 1997; Jehn & Mannix, 2001). Thus, we do not intend to argue that collective appraisal is objectively desirable in all instances. Instead, our aim is to acknowledge that collective appraisal is sought by individuals within teams in order to reduce training and straining effects, and from this assumption to theorize the implications of collective appraisal separation on individual team members and the team. With this in mind, we focus our theorizing on collective appraisal separation. Our theoretical model is presented below, in Figure 5.

Insert Figure 5 Here

Short-Term Effects of Collective Appraisal Separation

Borrowing from the CATS framework, we propose that training effects (i.e., minor and non-lasting) occur during short-periods of collective appraisal separation. However, the extent to which training effects occur is dependent on the degree of collective appraisal separation. Specifically, greater degrees of collective appraisal separation produce greater training effects. We conceptualize these outcomes in three categories: psychological, relational, and team process. First, we propose psychological training outcomes including changes in affective state and acute burnout. Second, we propose a relational training outcome of task conflict. Finally, we contend a team process training outcome of team dissatisfaction. We review each below.

Psychological training. We define *psychological training* as minor, non-lasting effects on one's emotional states and cognitive resources. First, collective appraisal separation may

facilitate changes in *emotions*, which reflect immediate, specific, and adaptational responses to stress appraisal that motivate action (Lazarus, 1993, 2001). Events, such as a team disagreement, are primary drivers of emotions in occupational settings (Jehn, 1997; Thomas, 1992; Weiss & Cropanzano, 1996). Indeed, disagreement about goal relevance of a stressor may lead to emotional arousal as individuals who perceive the stressor as relevant feel that their warnings are going unheeded, and those that perceive the stressor as irrelevant feel that time is being wasted on unimportant tasks (c.f. Driskell & Salas, 1992; Foushee, 1982). Similarly, disagreement regarding who is responsible for a negative circumstance may be a source of contention (Alnuaimi, Robert, & Maruping, 2010; Tjosvold, Yu, & Hui, 2004). Emotional changes from collective appraisal separation are meaningful because they may shift one's emotional responses away from the stressor and towards the team. For example, fear is an adaptational emotion meant to facilitate removal of oneself from a possible loss (Lazarus, 1993). In this light, fear is a reasonable response for a team member who feels highly threatened by a stressor. However, if collective appraisal separation is high, a team member experiencing fear may shift their emotion to anger at the team members who are preventing them from the biological need to escape the stressor, because they now attribute blame for the circumstance to those team members (Lazarus, 1993).

Second, collective appraisal separation may also facilitate *acute burnout*, defined as a psychological response to work stress characterized by emotional exhaustion (i.e., a depletion of emotion resources), depersonalization (i.e., detachment from work roles and other individuals), and reduced feelings of personal accomplishment (i.e., diminished perceptions of one's abilities; Halbesleben & Buckley, 2004; Maslach & Jackson, 1981; Schaufeli, Maslach, & Marek, 1993). By acute, we contend that team members only experience a short-term deficit of psychological

resources as a result of short-term collective appraisal separation (c.f. Hobfoll, 2001). As team members realize they disagree and engage in discussion to remedy their disagreement, cognitive resources are devoted to the process of listening, interpreting, and subsequently communicating counter-points (c.f. Amason, Thompson, Hochwarter, & Harrison, 1995). This process drains the immediately available cognitive resources of the team members, which are inherently limited (Hobfoll, 2002). Further, once a response to the stressor is chosen, team members may still disagree regarding the outcome expectancy of the chosen response. For example, some team members may perceive a positive outcome expectancy (i.e., coping) while others perceive a negative outcome expectancy (i.e., hopelessness). Burnout occurs when there is a perception of threat towards valued resources (Hobfoll, 1988, 1989, 1998, 2001). Since high collective appraisal separation implies that team members may not be able to respond to stressors in their desired way, we argue that collective appraisal separation will be perceived as threatening, and thus facilitate acute burnout.

Relational training. We define *relational training* as minor, non-lasting effects on *task conflict*, defined as disputes regarding the issue at hand (Jehn, 1997), such as if a stressor is relevant to the team and how it should be engaged with. Thus, short-term collective appraisal separation facilitates discussions directly related to reducing collective appraisal separation. We argue that discussions will primarily (but not only) center around the contents of appraisal that are disagreed on. For example, if a team does not agree regarding goal congruence, team members may discuss their reasons for believing the stressor will facilitate or debilitate the achievement of the team's goals in more detail in order to sway team members to their position. Similarly, if one or several team members appraise the stressor as relevant to a personal moral standard, they will be motivated to share this concern with the team, as failure to live up to a

personal ego-ideal could produce feelings of shame (Lazarus, 2001). Typically, teams will need to reach agreement on primary appraisal (i.e., what issues matter) before effectively discussing secondary appraisal (options for responding to those issues; e.g., Foushee, 1984). This can be problematic because although the term primary and secondary implies order, both appraisal processes tend to happen simultaneously (Lazarus, 2001; Lazarus & Folkman, 1984). Thus, a team member may falsely assume agreement on primary appraisal, opening a discussion regarding secondary appraisal, only to be met with a comment such as ‘wait, why are even talking about this? It is completely irrelevant!’ However, disagreements regarding secondary appraisal can also facilitate task conflict. For example, disagreements about coping potential or future expectations may lead some team members to try to convince others why a certain response is more viable than they believe it is.

Team process training. We define *team process training* as minor, non-lasting effects on team member perceptions of the team. Specifically, we argue that collective appraisal separation produces short-term *team dissatisfaction*, defined as a general discontent about one’s team members, team processes, and/or the team itself (Gladstein, 1984; Vegt, Emans, & Vliert, 2001). Every team member, although pursuing a shared goal, does appraise events individually (Lazarus & Folkman, 1984). Thus, as collective appraisal separation increases, there are inherent discrepancies between what stressor response one believes is best and the direction the team appears to be headed. This is salient because when the team disagrees about short-term response alternatives, it may have implications or allow for insinuations about longer-term behavior. For example, disagreements regarding goal relevance may imply that disagreement will continue when the team is faced with similar kinds of stressors. As a result, one may begin to wonder if the team’s long-term prospects are in alignment with their own expectations for the team. Indeed,

existing literature has shown that importance of consensus for team satisfaction (Amason & Schweiger, 1994; Ross, 1989; Schweiger, Sandberg, & Ragan, 1986).

Cases of ego-involvement (i.e., esteem and morality) are also worth consideration because of their considerable importance and oftentimes conflict with goals of rational organized behavior (e.g., Hummels & Leede, 2000; Jackall, 1988; Solomon, 1992). When teams are dealing with stressors that are new to the team, there may be certain esteem or morality related issues that arise for which the team was not previously aware. For example, one member of the team may reveal that they expect to receive credit for a positive outcome as opposed to sharing the credit with the whole team, which may leave a mark on how the team perceives that individual. Or, a team member may raise a moral concern that is important to them, only to find that the rest of the team is unconcerned with the issue presented. When these kinds of disagreements occur, they can erode the bonds of the team through the creation of team dissatisfaction. To summarize the preceding sections:

Proposition 1a: Collective appraisal separation has a positive relationship to short-term emotions and acute psychological strain

Proposition 1b: Collective appraisal separation has a positive relationship to short-term task-conflict

Proposition 1c: Collective appraisal separation has a positive relationship to short-term team dissatisfaction

Long-Term Effects of Collective Appraisal Separation

We contend that through training effects, interactions with the stressor, and feedback, teams are hopeful that they can minimize collective appraisal separation. However, in some instances, teams are unable to do so, and this facilitates sustained activation in dealing with the stressor. In cases of sustained activation, individuals begin to experience straining effects, which are major and lasting negative effects of long-term engagement with a stressor (Ursin & Eriksen, 2004). Thus, these effects are more severe than their training effects counterparts. In part, this is

because long term exposure to stressors wears down resources, making individuals more susceptible to its effects (Hobfoll, 2001). Within teams, this is also because sustained exposure can deteriorate the efficacy of communication within the team. This is evidenced by the importance of similarities in teams regarding work values (Enz, 1988; Jehn & Mannix, 2001) and norms (Hackman, 1987; Sundstrom et al., 1990), which allow teams to develop better conflict patterns and team outcomes (Jehn & Mannix, 2001). We contend that team values, norms, and other related concepts matter because they allow a degree of consensus regarding collective appraisal. In this light, just as long-term disarray in team values and norms can hinder team effectiveness (Sundstrom et al., 1990), collective appraisal separation produces more severe effects in the long-term than it does in the short-term. Thus, we now conceptualize proposed long-term (i.e., straining) effects of collective appraisal separation, including psychological, relational, and team process outcomes.

Psychological straining. We define *psychological straining* as major and lasting effects on one's emotional states and cognitive resources (Hobfoll, 2002). First, collective appraisals separation may facilitate *negative affective sentiments* defined as generalized “dislikes’ [toward an object] acquired on the basis of previous experience or social learning” (Frijda, 1994: p. 64). Thus, negative affective sentiments can be thought of as long-term, sustaining negative emotions towards the team (c.f. Giner-Sorolla, & Fisher, 2017). Thus, a team member who has a negative affective sentiment towards the team experiences negative emotions when thinking about the team, when communicating with the team, talking about the team with others, and possibly when engaging in their individual work-related tasks (Ford, Wang, Jin, & Eisenberger, 2018). The reason this occurs after sustained engagement with a stressor is that team members may begin to think disagreements cannot be resolved. For example, in the short-term, a disagreement about

goal relevance does not affect sentiments towards the team because there is still opportunity for the team to discuss the issue and resolve it or to learn more information in trying to increase collective appraisal. Once these have occurred, continued disagreement implies that the issue is not a matter of communicating more or acquiring more information; rather, the team members have a stable disagreement about the stressors that truly matter to team goals, and thus have a tendency to respond with specific emotions (e.g., Gervais & Fessler, 2017). The stability of expectation regarding team agreement is what produces a similarly stable sentiment towards the team (Giner-Sorolla & Fisher, 2017).

Second, collective appraisal separation may cause team members to experience *chronic burnout*, which we characterize as a long-term experience of emotional exhaustion, depersonalization, and decreased personal accomplishment (Maslach & Jackson, 1981). Team members have limited available resources and there are distinctions between resources that are available within a short-time frame and a longer-time frame. For example, a bad day can become a bad week, month, year, or life to the extent that increasingly longer-term resources are affected by stressors, such as losing the option to use a car, experiencing sustained unexpectedly severe weather, losing a loved one, or being diagnosed with a debilitating disease, respectively. Thus, if teams must address high collective appraisal separation in the short-term, they can expend additional resources or borrow resources from other areas without suffering long-term consequences (Hobfoll, 1998). Without adequate replenishment of resources, however, resources become depleted or permanently affected (Hobfoll, 2001). As a result, team members may experience more stable progressions of burnout (Maslach & Jackson, 1981). This is likely to have a disproportionate influence on team members that are most separated from the group in terms of appraisal. For example, a team member who disagrees with the team about coping

potential and future expectations may initially be emotionally exhausted from trying to sway the team towards a different response to the stressor. In the long term, however, sustained disagreement may cause that team member to become depersonalized with the group, and eventually to see little value in their own contributions to the group. Thus, long-term high collective appraisal separation could facilitate chronic burnout.

Relational straining. We define *relational straining* as major and lasting effects on team communication processes. One possible relational straining outcome is *affective conflict*, defined as interpersonal disputes that tend to be more emotional in nature and less about the issue at hand (Amason et al., 1995; Greer, Jehn, & Mannix, 2008; Jehn, 1997). For example, team members could be referenced jokingly by other team members, could have their mannerisms mocked, or may be outright insulted, as evidenced by qualitative interviews by Karen Jehn (1995) and literature on gossiping (e.g., Beersma & Van Kleef, 2012; Foster, 2004). While there are many reasons for direct affective conflict or indirect affective conflict through third-party gossiping, one predominant explanation is an attempt to sway outlying team members closer to team norms (Dunbar, 2004; Gluckman, 1963). In this light, we argue that affective conflict is a natural, albeit destructive, attempt to pressure team members to change their appraisal to thus avoid future social heckling. Affective conflict is particularly likely when disagreements about important moral values are both high and sustained for a long period of time because such disagreements may be threatening to team members' social identity (Tajfel & Turner, 1979).¹⁴ We argue that this can also occur over disagreements regarding blame, particularly if the disagreement is over which of the team members is to blame for the existence of the stressor and its possible outcomes

¹⁴ Also, see results from Prooijen & Ellemers (2015) that perceived morality has a greater impact on team attractiveness than does perceived competence.

(Tjosvold et al., 2004).¹⁵ Even disagreements about seemingly small issues may lead to affective conflict over time through the butterfly effect (see complexity theory; Manson, 2001): small deviations from some team members' preferred stressor responses may lead to increasingly large discrepancies in the future as the initial responses may effect the way the team addresses stressors in the future through institutional norms.

Sustained high collective appraisal separation may also produce *coalitions*, defined as an informal group of individuals who deliberately engage in concerted action to pursue a shared goal (Munyon, Summers, Brouer, & Treadway, 2014; Stevenson, Pearce, & Porter, 1985). Although coalitions may form for many reasons (e.g., see Komorita & Parks, 1995), we contend that coalitions may form to: (1) sway other team members to join the coalition and thus develop high collective appraisal (i.e., to reduce perceived goal discrepancy; see Munyon et al., 2014) or (2) enforce stressor responses consistent with the coalition's appraisal regardless of the extent of collective appraisal (i.e., via power over others; see Galinsky, Rus, & Lammers, 2011; Emerson, 1962; Etzioni, 1969). High collective appraisal is preferable because it reduces friction within the team; thus, altruistic coalitions (i.e., those acting in accordance with team objectives) will generally try to sway other team members to their side (Munyon et al., 2014). However, if this cannot be achieved, from the coalition's perspective, strains are minimized if they can at least enforce stressor responses consistent with their appraisals. This type of coalition has been characterized as antagonistic (Munyon et al., 2014) and is likely to arise in retaliation of a

¹⁵ While to our knowledge blame disagreements are not prevalent in the teams literature, we contend that this process operates similarly as in superior-subordinate relationships after a workplace error. Disputes are always possible regarding the existence and outcome of a stressor: was it a process issue or was the worker acting without care? See Pate and Stajer (2001) for reference.

perceived injustice (c.f., Bies & Tripp, 1996). Of course, this can be particularly straining for those team members not in the coalition.

Team Process Straining. Finally, sustained collective appraisal separation may produce *team process straining* outcomes, which we define as major and lasting effects on team roles and behaviors. Specifically, we propose that team process straining could facilitate *team member changes*, defined as the addition or removal of a team member (Summers, Humphrey, & Ferris, 2012). First, adding a team member could help resolve the dispute at hand. Sometimes teams may disagree on future expectations of a stressor response because nobody on the team has the requisite experience to make such expectancies accurately. By adding a team member with more experience with a specific type of stressor, the team may be able to increase collective appraisal. Second, a team member may voluntarily or involuntarily be removed from the team (e.g., Shaw, Delery, Jenkins, & Gupta, 1998). A team member may leave voluntarily because they are consistently appraising events differently from other team members. Similarly, *cognitive differentiation* (i.e., differences in experiences, attitudes, priorities, and perspectives; Pfeffer & Salancik, 1978) has been related to higher levels of turnover because of its effects on team effectiveness (e.g., McCain, O'Reilly, & Pfeffer, 1983; O'Reilly, Caldwell, & Bamett, 1989). Further, team members benefit from feeling they have voice (i.e., the discretionary verbal communication of ideas, suggestions or opinions with the intent to improve the team; Greenberg & Edwards, 2009; Morrison, Wheeler-Smith, & Kamdar, 2011) within their group, but the lone-opinion may be put aside for the more dominant perspective (Stevenson et al., 1985). It is also possible for a team member to be involuntarily removed particularly if their disagreements are viewed as the primary cause for affective conflict (similarly, see the scapegoating perspective on executive dismissal; Lieberman & O'Conner, 1972; Meindl, Ehrlich, & Dukerich, 1985; Shen &

Cho, 2005). In both addition or removal cases, team member changes occur in attempts to find collective appraisal because the lack thereof is straining on team members well-being. To sum the above contentions:

Proposition 2a: Sustained collective appraisal separation has a positive relationship to negative affective sentiments and chronic psychological strain

Proposition 2b: Sustained collective appraisal separation has a positive relationship to affective conflict and coalition formation.

Proposition 2c: Sustained collective appraisal separation has a positive relationship to team member changes

Contextual Differences Between OTs, TMTs, and NVTs

To this point, we have theorized about the short and long-term effects of collective appraisal separation within teams, generally. However, there are many different types of teams in organizations, and there may be a substantive/qualitative differences in those teams that influence the effects collective appraisal separation. Thus, below we theorize about three different types of teams that are studied by organizational science researchers. Specifically, we explore contextual differences between OTs, TMTs, and NVTs. We explore these teams specifically because of clear contextual differences between them that create theoretical differences regarding the effects of collective appraisal separation.¹⁶ We characterize OTs as institutionally constrained (Blumberg & Pringle, 1982; Johns, 1991; Tesluk & Mathieu, 1999), TMTs as informationally constrained (March & Simon, 1958; Miller, 1987), and NVTs as resource constrained (Klotz et al., 2013). These differences are meaningful because they affect the likelihood of increasing collective appraisal, the capabilities to respond to stressors in the desired way, and the ability to learn through feedback. Those effects, in turn, enhance or

¹⁶ We do note, however, that there are other teams in organizations that we exclude here. For example, middle-management teams and self-managing teams. We contend that the context of these teams is a blend of the contextual features of the three we focus on. For example, middle-management team blend contextual features of TMT and OT; meanwhile, self-managing teams blend contextual features of NVT and OT.

diminish the effects of collective appraisal separation on training and straining effects within teams. We now theorize about these differences and their influences, below.

Organizational teams. Although there are cases of self-managed teams (e.g., Wageman, 2001), we focus here on OT's that exist within a hierarchical structure of an organization and whose roles are largely provided to them by an organizational superior (Johns, 1991). These teams are characterized as institutionally constrained because they have limited control over information, persons, and resources within the organization (Mechanic, 1962). As a result, for OT's to maintain their position within an organization, they must abide by coercive norms of the organization (e.g., DiMaggio & Powell, 1983) that govern the core outcomes of the OT, their range of behaviors in attaining those outcomes, and their feasible influence on that governance (Blumberg & Pringle, 1982). In such environments, we contend that the likelihood of high collective appraisal and the ability to learn through feedback are high; however, the capabilities to respond to stressors in the desired way is low. We review these three contentions, below, and then explain how these three contextual features diminish the effects of collective appraisal on training and straining outcomes.

First, we contend the likelihood of high collective appraisal in institutionally constrained environments is high because the range of possible appraisals are low. Put another way, institutionally constrained environments are *strong* contexts in that they minimize individual-level variation (Mischel, 1977).¹⁷ This is the backbone of the challenge-hindrane framework (see LePine, Podsakoff, & LePine, 2005), which contends that workplace contexts are similar

¹⁷ We note that remote work and geographically dispersed teams are becoming increasingly prevalent in modern society (e.g., Hinds & Mortensen, 2005). We do not include these teams as part of our theorizing because their increased autonomy reduces the extent of institutional constraint that is assumed in our theory. However, we also cite coordination and trust issues within these teams as evidence that our theory would still apply in such settings (e.g., Armstrong & Cole, 2002; Cramton, 2001; Jarvenpaa & Leidner, 1999).

enough across occupations that stressors can be categorized as positive or negative for employee motivation, strain, performance, etc., because appraisal cannot meaningfully lead to different outcomes. As a result, we argue that OT are likely to experience higher collective appraisal relative to other team settings.

Second, we propose OT's have high ability to learn through feedback. OT's are often 'on the ground' in the sense that they are actively engaging with a variety of stakeholders (c.f. Christenson, Ysseldyke, & Algozzine, 1982). This could include other individuals or teams within the organization, organizational superiors, other organizations that play a role in the supply or value chain of the firm, or customers (e.g., Maxham, Netemeyer, & Lichtenstein, 2008). This exposes OT's to the most direct source of organizational stressors, such as arguing with another part of the organization about which unit is responsible for a task, negotiating responsibility for an unexpected cost with a supplier, or trying to appease an angry customer (i.e., aspects of the input-process-output model; see Guzzo & Shea, 1992). Each of these interactions produces valuable advice, particularly for those OT's that experience the same stressors repeatedly as part of their organizational role. Therefore, OT's are well equipped to offer valid solutions to meaningful stressors, and oftentimes find useful solutions despite organizational constraints (Tesluk & Mathieu, 1999).

Third, OT's may have only limited capabilities for responding to the stressor. If a team learns through experience how to best address a stressor and increases collective appraisal, the response may need to be cleared with an individual or team above them in the hierarchical structure (Blumberg & Pringle, 1982; Johns, 1991). Thus, even if agreement is reached regarding coping potential and future expectations, if the ideal behavior falls outside of the scope of the available options afforded by the institution, the team possibly won't be able to respond as

desired (see limitations of coal miners, Goodman, 1986; and of woodsmen, Kolodny & Kiggundu, 1980). Indeed, some OTs may find that they are most strained when the team has high collective appraisal, but nonetheless are constrained from taking the perceived appropriate action (Mathieu, Martineau, & Tannenbaum, 1993). This is because having high collective appraisal combined with the inability respond makes the limitations of the institutionally constrained environment most salient, such as employees within NASA who witnessed a gradual shift safety-focus to production focus but nonetheless were powerless in the face of administrative changes that produces “a reduction in the number of safety personnel...a decline in the status of those safety jobs that remained...[and] a return to the decentralized structure that was implicated as a direct cause of the *Challenger* accident” (Haunschild, Polidoro, & Chandler, 2015: 1684).

Because OT’s experience a high likelihood of high collective appraisal and high ability to learn through feedback, but comparatively low capabilities to respond to stressors in the desired way, OTs experience less training and straining effects as a result of collective appraisal separation. When collective appraisal separation is at its maximum, the institutional constraints on possible responses (Blumberg & Pringle, 1982; Johns, 1991; Tesluk & Mathieu, 1999) minimizes the extent to which the team will converse about possible alternatives. Conversely, when collective appraisal is high, institutional constraints still may prevent OTs from alleviating the stressor. As a result, OTs are more likely than other teams to be confronted with sustained straining outcomes *due to long-term stressor exposure*, as opposed to *long-term collective appraisal separation*. While collective appraisal separation is still meaningful, stress inducing, and conversationally driving, the objective stressors placed on the OT are likely the larger predictors of the team related outcomes because of the institutionally constrained present. This lessens the impact of collective appraisal on the stress process for these groups.

Proposition 3a: *Compared to other forms of teams, institutionally-constrained teams such as organizational teams will experience weaker effects from collective appraisal separation*

Top management teams. TMTs, leaders of a firm who “scan, transmit, analyze, and act on environmental information” to guide organizational strategy, are another prominently studied team within the organizational sciences who face constraints (Hambrick & Mason, 1984: p. 203). Specifically, TMTs face information constraints (March & Simon, 1958; Miller, 1987) which limit their ability to effectively execute one of their chief responsibilities: processing information to make sound strategic decisions (Certo, Lester, Dalton, & Dalton, 2006; Halebian & Finkelstein, 1993). TMTs face two meaningful and interrelated challenges that are unique to their context. First, they must correctly assess the external environment to develop a strategy that will acquire and use resources effectively to capture and sustain a profitable market position (Barney, 1991; Crook, Ketchen, Combs, & Todd, 2008; Sirmon, Hitt, & Ireland, 2007). Second, they must provide internal policies and direction that create effective employee interactions with both internal and external stakeholders to carry out their strategic vision (c.f. Sirmon, Hitt, & Ireland, 2007). Given the sheer scope of influence and thus importance of their decisions, collective appraisal within TMTs may have large ramifications for many organizational stakeholders.

Notably, while trying to accomplish these means, TMTs face bounded rationality because of increasingly complex and dynamic environments (Cyert & March, 1963; Hambrick & Mason, 1984).¹⁸ As a result, TMTs must satisfice their decision making (Herbert, 1947) through cognitive processes (Rindova, Reger, & Dalpiaz, 2012) while focusing on a narrow set of

¹⁸ Of course, the industry task characteristics to vary (e.g., Dess & Beard, 1984). Nonetheless, we contend that this assumption holds true when comparing TMT to OTs and NVTs.

available issues (Ocasio, 1997). In such environments, we contend that the likelihood of high collective appraisal and the ability to learn through feedback are low; however, the capabilities to respond to stressors in the desired way is high. After reviewing each of these contentions, below, we explain why these three contextual features produce larger effects of collective appraisal on training and straining outcomes than seen in OT's.

First, we contend that TMTs experience difficulty in reaching states of high collective appraisal. Because top managers are rationally bounded in complex and dynamic environments (Cyert & March, 1963), it is advantageous for them to put together larger teams to deal with environmental uncertainty (Haleblian & Finkelstein, 1993; Thompson, 1967; Tushman & Keck, 1990). This behavior promotes diversity in functional background, education, tenure, age, gender, or cultural differences (Roh, Chun, Ryou, & Son, 2019). Although diversity is helpful for adding to the collective knowledge of the group, it also can produce varying degrees and types of conflict (Amason & Sapienza, 1997; Roh et al., 2019). Specifically, those with differing backgrounds are likely to envision different ways of accomplishing team goals. Specifically, TMT members may disagree about which issues matter (i.e., primary appraisal) and how to address them (i.e., secondary appraisal). For example, a top manager with marketing experience may not recognize omissions of effective internal audit procedures, where a top manager with accounting experience will immediately recognize and seek to resolve the exact same issue. These fundamental differences in what is noticed as problematic within the diverse TMT makes it exceedingly difficult to have high collective appraisal and may be one reason that TMT scholars moved away from thinking conflict is inherently bad and began to theorize how it may be helpful for TMTs (Amason & Sapienza, 1997; Amason et al., 1995). Every TMT member brings their own unique experiences that, as a result, makes different issues more salient than

others. However, if TMTs are operating with limited slack resources, they will have to focus their attention on only a limited set of issues (Ocasio, Laamanen, & Vaara, 2017). This can make it challenging to have high collective appraisal.

Second, we argue TMTs have limited capabilities to learn through feedback when they respond to both internal and external stressors, in both cases related to constraints on available information (Cyert & March, 1963). Externally, TMTs face dynamic competitive and resource environments. Competitors continuously scan the environment for resources that could create a sustained competitive advantage (Sirmon et al., 2007), and consistently watch and react to industry leaders to either imitate their behaviors (Barney, 1991) or attempt to subvert them. While doing so, however, competitors conceal their strategic actions, the purposes behind them, their existing internal resources, and processes for using those resources effectively in order to make their resources less imitable (c.f. Rivkin, 2000). Coinciding with this, environmental resources are dynamic in the sense that new and potentially valuable resources become available and already available resources fluctuate in their relative value quickly over time (Castrogiovanni, 2002). TMT's thus have imperfect information regarding their external environment and the strategic value of their internal resources (Dierickx & Cool, 1989). Even though the TMT must make strategic decisions that will have implications for many of the hierarchies within the firm, their lack of exposure to 'on the ground' problems make it difficult to adequately understand certain organizational issues and how to best resolve them (Bower, 1970; Floyd & Wooldridge, 1992; Thompson, 1967). Hence TMT tend to rely on middle managers as information intermediaries and middle managers thus play a meaningful role in both organizational strategy and the motivations of employees (Bower, 1970; Huy, 2002). This implies internal information constraints that make it difficult to surmise how to properly orient

the internal aspects of the firm to successfully compete in the market. To resolve informational constraints (in addition to seeking guidance from middle managers), TMTs utilize metrics, heuristics, and intuition (c.f. Rindova et al., 2012); nonetheless, their limited capability to learn from interactions with stressors is maintained because in such complex environments it is difficult to tie TMT actions to performance outcomes in a conclusive manner. As a result, TMTs face difficulties in increasing collective appraisal because a lack of objective information combined with bounded rationality accentuates the effects of diversity in experiences present in the TMT, thus making disagreements even more likely and sustainable.

Third, despite the limitations already discussed, we contend that TMTs benefit from a high ability to respond to stressors in their desired way. TMTs have the autonomy, authority, and responsibility over necessary resources to attempt to enact their internal and external strategic vision (Barnard, 1938). Internally, TMTs have control over existing resources to structure, bundle, and leverage them towards their goals (Sirmon et al., 2007). Externally, TMTs can choose to align with, ignore, indirectly subvert, or directly compete with existing market players (c.f. Montgomery, 1994; Villalonga & McGahan, 2005). When new resources become available, TMTs may choose to either pursue them as part of their resource management strategy (Sirmon et al., 2007, Sirmon, Gove, & Hitt, 2008). If they choose to pursue new resources, because the TMT leads the organization, they have the control over necessary resources to engage in the resource structuring process (i.e., the addition of resources; Sirmon et al., 2007). Their ability to respond is even greater when firms have large amounts of slack resources (Wan & Yiu, 2009). This would imply that firms like Apple and Microsoft that have accumulated tremendous amounts of cash offer flexibility for their TMTs to move forward with almost any desired stressor response. Thus, because of the authority, autonomy, and responsibility for directing firm

resources, and the possibility of slack resources, TMTs benefit from a high ability to respond to stressors.

In informationally constrained environments, we propose TMTs experience low likelihood of achieving high collective appraisal and effectively learning through feedback. However, they do have exceptional control over their response to stressors. This contextual environment makes collective appraisal separation more likely to produce training and straining effects. Specifically, because TMTs have such high control, high collective appraisal separation mostly results from team member differences and makes these differences salient to the team. This suggests that collective appraisal separation is more likely to lead to interpersonally related straining issues such as a negative affective disposition towards the team, affective conflict, coalitions, and team member changes. Specifically, because differences in appraisal result from large differences in personal experiences within TMT, conflict and resulting outcomes are more likely to address personal factors than if the team had similar personal experiences and backgrounds. For example, a TMT member responsible for the sales division may think ‘nobody else here has the competence or experience to tell me that this issue is irrelevant to our ability to protect ourselves from losing sales’; this thought, whether verbally stated or not, can influence the extent to which collective appraisal separation promotes straining outcomes. In contrast, when TMTs do experience collective appraisal, straining effects are minimized because the team can move forward with the stressor response that has a positive expectancy (i.e., they can cope). Therefore, collective appraisal separation has stronger effects on training and straining outcomes in this context than in OT.

Proposition 3b: Compared to occupational teams, informationally-constrained teams such as top management teams will experience stronger effects from collective appraisal separation

New venture teams. Finally, we contend that NVTs, “the group of individuals that is chiefly responsible for the strategic decision making and ongoing operations of a new venture” are a third type of team that experiences unique contextual differences relative to OTs and TMTs (Klotz et al., 2013: 228). Further, by new venture, we mean “a firm that is in its early stages of development and growth” (228). NVTs attempt to capitalize on a perceived market opportunity under resource constraints such as lack of legitimacy, financial resources, and relationships with relevant stakeholders (Aldrich, 1999; Sine, Mitsuhashi, & Kirsch, 2006; Stinchcombe, 1965; Thakur, 1998). Because the environment is resource constrained, successfully exploiting an opportunity often requires unique and creative combinations of readily available resources (Baker & Nelson, 2005). It also requires teams to work closely together in more interdependent roles which makes the relationships between NVT members particularly salient (Blatt, 2009). NVT contexts are unique because they exist in arguably the *weakest* contextual environment relative to other teams of interest in the organizational sciences (Klotz et al., 2013). This is important for NVTs because they operate in dynamic and uncertain environments that require flexibility in appraisals and coping responses (Lerman & Williams, 2017). We argue that the NVT context is conducive to high collective appraisal, ability to learn through feedback, and capabilities to respond to stressors in the desired way. However, NVTs are particularly susceptible to training and straining effects if they are unable to achieve high collective appraisal. We theorize why this is the case, below.

First, we argue NVT work environments are conducive to high collective appraisal. While NVTs do require diversity in functional knowledge, many NVTs start between friends who share a passion for a specific idea (Reynolds et al., 2002). Put another way, people who think differently from one another are less likely to start a business together to begin with (c.f.

Schneider, 1987). Further, NVT roles tend to be interdependent (Klotz et al., 2013) because the young firm is small, illegitimate, and strapped-for-cash (e.g., Aldrich & Fiol, 1994). This means that NVT members interact with one another very frequently and celebrate small wins together to sustain passion for the firm (e.g., Gielnik, et al., 2015). Finally, entrepreneurs develop a metaphorical and literal parental bond with their firms (Cardon, et al., 2005; Lahti, Halko, Karagozoglu, & Wincent, 2018). As a result, the NVT shares a meaningful bond that could promote similar thinking. Of course, this does not imply that NVT members will always agree, especially when faced with new stressors.

However, we propose that NVTs are afforded high ability to learn through feedback as they respond to stressors. Founders are the primary drivers of value to customers while also facilitating relationships with potential investors and other stakeholders and mapping out the young firm's long-term strategic direction to reduce mortality risks (Shepherd, Douglas, & Shanley, 2000). While such tasks are extremely demanding themselves on team members' well-being (e.g., Cardon & Patel, 2015), they also facilitate a tremendous amount of learning (Minniti & Bygrave, 2001; Politis, 2005). Because NVT members are 'on the ground' experiencing the issues and bright points of their new product or service, they are in better position to adapt their strategic direction to improve the firm than their TMT counterparts. Thus, NVTs quickly obtain feedback about their stressor response effectiveness, thus allowing them to re-appraise situations more quickly.

Finally, NVTs have high capabilities to respond to stressors. NVTs exist in characteristically weak environments, meaning that their appraisals and behaviors are not substantially constrained (Klotz et al., 2013). Further, they can design their work environments to be most conducive to effective team functioning and successful exploitation of business

opportunities (Baron, 2010). NVTs have more autonomy regarding their decisions relative to other team settings; although, sometimes NVTs can be constrained by angel investors, venture capitalists, or even crowdfunders (e.g., Gras, Nason, Lerman, & Stellini, 2017). Further, because NVTs are small firms with limited resource commitments, they can initiate these changes relatively quickly. While NVTs are resource constrained (Aldrich, 1999; Sine et al., 2006; Stinchcombe, 1965), their ability to make due with available resources (Baker & Nelson, 2005) allows them to move towards desired stressor responses regardless.

In sum, NVTs experience capabilities to achieve high collective appraisal, ability to learn through feedback, and capabilities to respond. We contend that these unique contextual features enhance the effect of collective appraisal on training and straining effects. While NVTs have autonomy in responding to stressors and flexibility to adjust their responses as they learn (Baron, 2010), they exist within dynamic competitive environments that require fast action to exploit an opportunity with a high-quality solution before a competitor does (e.g., Barney, 1986). Further, this is typically done at great risk by NVT members: the early and growth stages of entrepreneurship often require financial, relationship, and time sacrifices that many are either unable or unwilling to make (Davidsson, 1991; Kozan, Oksoy, & Ozsoy, 2012; see conservation of resources theory, Hobfoll, 1989, 2001). In this high-stakes scenario, the effects of collective appraisal separation on training and straining outcomes are amplified. Each NVT member risks substantial personal resources (Hobfoll, 1989). Further, currently available opportunities may not be present in the near future (Baron, 1998; Davidsson, 2015; Denrell, Fang, & Winter, 2003), making the implications of collective appraisal separation more severe for NVTs than for TMTs or OTs. If NVTs have low collective appraisal, it may be increasingly difficult to work effectively towards the organization's goals. This is enhanced by the interdependent nature of

young firm roles (Blatt, 2009), where one founder's actions can counter another's if they are not in agreement about which issues matter and the correct way of dealing with those issues.

Conversely, high collective appraisal is extremely useful in an NVT context because of the weak environment and flexible nature of a young and small firm that allow NVTs a more diverse range of possible response alternatives than in other team settings (Baron, 2010; Mischel, 1977). Thus, per the arguments described above:

Proposition 3c: Collective appraisal separation will have the strongest influence on NVT's, followed by TMTs, and then by OT, as a result of contextual differences in resource constraints, informational constraints, and institutional constraints, respectively.

DISCUSSION

Despite the widely agreed upon importance of appraisal in understanding the stress experience (e.g., Arnold, 1960; Cooper et al., 2001; Harris, 1991; Lazarus & Folkman, 1984; Paterson & Neufeld, 1987), existing conceptualizations of appraisal are unhelpful for understanding team-level phenomena. To remedy this deficiency, we develop a conceptualization of collective appraisal, the extent to which team members agree concerning which stressors are relevant to the team and how to respond to those stressors. We apply concepts from CATS (Meurs & Perrewé, 2011; Ursin & Eriksen, 2004) to understand the short-term (i.e., training) and long-term (i.e., straining) effects of collective appraisal separation, and distinguish the strength of its effect across OTs, TMTs, and NVTs. We contend that this theoretical development changes the way we think about appraisal, and as a result of this, makes prominent contributions to three topics in team research: team conflict, related team psychological constructs, and leadership. We first discuss our contribution towards appraisal, and then review contributions to team literature.

Appraisal: From Psychological to Sociological

Individual-level conceptualizations of appraisal assume that individuals are principally responsible for how they respond to stressors (Lazarus & Folkman, 1984). The implication is that if one is aware of and able to adapt appraisals, they may be able to self-regulate more effectively (e.g., Anshel et al., 1997; Lazarus, 1993, 1994). Collective appraisal, however, operates under an entirely different assumption. Specifically, collective appraisal suggests that the way *others* (as well as oneself) appraise stressors has a meaningful influence on one's psychological, relational, and team process outcomes. As a result, future researchers should consider sociological factors as more central to appraisal processes than is currently the case. This re-orientation of appraisal increases the utility of appraisal in organizational science settings because of the necessity of groups of individuals to form and build successful firms (Barnard, 1938). It also implies that, at least within organizations, studying appraisal without accounting for social influence may produce biased findings. While we know quite soundly that appraisal matters (Ellsworth, 2013), addressing its sociological roots more soundly may be a good path for moving past its existing limitations at the individual-level (c.f. Fernando et al., 2017).

To our knowledge, no other work has detailed the nature of collective appraisal. When collective appraisal has been mentioned, it has merely been an avenue to explain theories related to collective emotional experiences through the influence of others (e.g., Bar-Tal, Halperin, & Rivera, 2007; Parkinson & Simons, 2009). For example, social appraisal theory suggests that through appraising other individuals' behaviors, thoughts, or feelings, individuals adapt their assessment of situations (Bruder, Fischer, & Manstead, 2014). Thus, this perspective suggests that emotions fill social functions (Keltner & Haidt, 1999). While this theory and other related ones are certainly helpful for understanding why groups converge on emotions, we contend that

emotional convergence is not the norm in organizational science phenomena. As a result, we need theory to explain the consequences of not having emotional convergence.

Our focus on collective appraisal, as opposed to collective emotions through processes such as social appraisal (e.g., Manstead & Fischer, 2001) or emotional contagion (e.g., Hatfield, Cacioppo, & Rapson, 1994), better resembles team functioning in organizational settings because it assumes a lack of convergence is likely and predicts its effects. Under this conceptualization, teams seek to develop convergence on appraisal, and this would, of course, facilitate emotional convergence (Ellsworth, 2013). Thus, collective appraisal removes the need for unrealistic assumptions in our theories. Further, it reveals that experiencing similar emotions in a team may not be adequate to develop effective team functioning, as previously found (Barsade, 2002). For example, team members may be engaging in surface acting, but this does not necessarily imply that a change in appraisal (i.e., deep acting) has occurred (Grandey, 2003). As highlighted throughout our theory, low collective appraisal, sustained for long-periods of time, can be incredibly threatening to healthy team members and team functioning. Thus, our theory demonstrates that appraisal has utility for more than predicting emotions, and that emotional contagion perspectives may not fully explain team behavior. In this light, we contend that collective appraisal (as opposed to individual-level appraisal) changes the way we think about three predominant topics in team research: team conflict, related team psychological constructs, and leadership. We review each of these contributions below before closing the paper.

Clarifying Team Conflict

Team conflict has been a phenomenon of interest for quite some time (e.g., Amason & Schweiger, 1994; Wall & Callister, 1995). In this light many scholars have collectively developed a strong understanding of the antecedents of conflict, types of conflict, and outcomes

of conflict (c.f., Horwitz & Horwitz, 2007; Dreu & Weingart, 2003). Although different terminology abounds, our prior conceptualizations of task and affective conflict has been an important focus for this field of research. In addition, *process conflict*, differences in opinion about how to accomplish tasks (Jehn & Mannix, 2001), is also meaningful. Of course, the type of conflict a team engages in has differing effects based on the timing of the conflict (e.g., stage of project development; Jehn & Mannix, 2001) and environmental conditions (e.g., complex tasks; Dreu & Weingart, 2003). We contend that collective primary and secondary appraisal provided added value in specifying conflict models for two reasons.

First, while prior literature has shown conclusively that team diversity promotes conflict (Horwitz & Horwitz, 2007), diversity itself cannot cause conflict without an intervening cognitive factor which, in this case, is appraisal (c.f. Cooper et al., 2001). Since appraisal is what translates objective environmental stressors into subjective and personally relational events (Lazarus, 1993) it follows that appraisal is the process of injecting ones own personal experiences and background into the processing of a stressor. Thus, without appraisal, we have no causal mechanism for understanding why diversity would lead to certain kinds of conflict as opposed to others. Further, because diversity does work through appraisal, it follows that diversity will only produce conflict to the extent that it facilitates differences in appraisal within a team (i.e., high collective appraisal separation). As a result, using collective appraisal to understand the relationship between team diversity and conflict may help in understanding *why* some forms of team diversity matter for how teams process stressors, hence providing a better avenue to explore and test theory. For example, differences in culture may cause collective appraisal separation relating to ego-ideals since different cultures tend to emphasize different moral issues (Haidt, Koller, & Dias, 1993).

Second, studying appraisal alongside conflict can help us develop a more precise understanding of conflict. Specifically, it could allow us to move beyond *types* of conflict to *content* of conflict. Our collective appraisal theory proposes that teams disagree about very specific things. For example, it is not enough to state that teams disagree about the importance of a stressor (i.e., primary appraisal), when we could further detail if the disagreement relates to goal relevance, goal congruence, or ego-involvement. Indeed, the types of conversations we would expect a team to have, and thus the way we should study those conversations and develop remedies to them, could be different across the three components of primary appraisal. Similarly, we can move beyond understanding the consequences of disagreement about coping generally, and instead emphasize specific disagreements of blame and credit, coping potential, and future expectations. Again, distinguishing between these three possible areas of team disagreement may require different antecedents, outcomes, and remedies.

Collective Appraisals Distinction from and Utility in Studying Other Team Constructs

We extend appraisal theory to the team-level, and in so doing, add an important mediator to team processes. To adequately suggest that incorporating appraisal into team literature has considerable value, we would be remiss not to distinguish it from other concepts that may seem similar from the perspective of an outside observer. Specifically, we seek to distinguish appraisal from team-member exchange (Seers, Petty, & Cashman, 1995), transactive memory systems (Lewis, 2003), and team mental models (Mohammed & Dumville, 2001; see Table 9 below). We review distinctions between collective appraisals and each construct, below.

Insert Table 9 about here

First, *team-member exchange*, a reflection of reciprocity in receiving and giving ideas, feedback, and assistance from team members (Seers, 1989), is a measure of the quality of exchanges within a team (Banks et al., 2013). Thus, team-member exchange is built over time, whereas appraisal is an assessment of a specific situation. We contend that team-member exchange and appraisal will have a reciprocal relationship that is malleable over time. For example, low collective appraisal that is sustained for a long-period of time produces straining effects. These effects (e.g., affective conflict, negative affective sentiments) could certainly influence the quality of team-member exchange. Conversely, team-member exchange may influence appraisals of stressors. For example, in cases of poor team-member exchanges, team members may be more likely to blame one another for the existence of our outcome from a stressor.

Second, *transactive memory systems* are the information possessed by each team member, in addition to the knowledge of what other members know (Peltokorpi, 2008). Transactive memory systems reflect a state of a team as opposed to its evaluations of a specific stressor. We propose that transactive memory systems could predict collective appraisal within teams. Indeed, knowledge of what other members are experts in could make team members more willing to listen to one another. For example, knowing that a team member has deep knowledge in an area that other team members know little about could facilitate adoption of the knowledgeable team members appraisal. Conversely, a poor transactive memory system would seemingly make it difficult to increase collective appraisal, because the team may either be inexperienced in dealing with the specific type of stressor (i.e., lack of information possessed by any team members) or inexperienced working with one another (i.e., lack of knowledge regarding what other members know).

Finally, *team mental models* are shared representations of the purpose, current state, and future state of team functioning (Healey, Vuori, & Hodgkinson, 2015; Rouse & Morris, 1986). We contend that team mental models have a reciprocal relationship with collective appraisal. Strong team mental models have been in part assumed in our theoretical framework because we assume that teams share the same goal. However, the challenges we have highlighted in this paper for teams striving to increase collective appraisal only become harder in the case of conflicting goals. Indeed, if team members have conflicting goals (i.e., poor team mental models) then their appraisals are even more likely to diverge. Collective appraisal can also influence team mental models by inhibiting the ability to reach a shared representation of team functioning. For example, if team members do not agree about which stressors matter or how to cope with them, it may make it difficult for the team to visualize the same long-term outcomes for the team.

Leadership Through A Collective Appraisal Lens

To this point, we have refrained from detailing the role of leaders in a team. However, an extensive literature has explored the role of leaders in organizing, guiding, and motivating their teams (Avolio, Walumbwa, & Weber, 2009). Although there are many opportunities to tie collective appraisal to existing leadership research, we would like to highlight one specific opportunity. Specifically, collective appraisal may add new understanding to the effects of transactional leadership vs. transformational leadership. *Transactional leadership* occurs when leaders “exert influence by setting goals, clarifying desired outcomes, providing feedback and exchanging rewards for accomplishments” (Dvir, Eden, Avolio, & Shamir, 2002: p. 735). Conversely, *transformational leadership* occurs when “leaders exert additional influence by broadening and elevating followers’ goals and providing them with confidence to perform beyond the expectations specified in the implicit or explicit exchange agreement” (p. 735).

Transformational leadership is often associated with developing more inspired and better performing employees through the development of high-quality leader member exchanges (Avolio et al., 2009).

The collective appraisal theory developed in this paper could promote theory development on well-being outcomes for employees in each of these leadership contexts. Specifically, we propose that transactional leaders are likely to develop less healthy team members than transformational leaders. Because transactional leaders set goals, clarify desired outcomes, and determine if success was reached or not, our conception of collective appraisal would not exist. Specifically, we argued that collective appraisal equally weights each individual team members' appraisal in terms of influence on collective appraisal (Kozlowski & Klein, 2000). However, the appraisal of transactional leaders has disproportionate effects on team functioning, so much so that other team member appraisal may not matter at all. Despite this, team members will still make appraisals of environmental stressors (Lazarus & Folkman, 1984) and thus will have preferred responses. Thus, collective appraisal separation from a transactional leader can be particularly straining on team members because they are forced to respond to stressors in undesired ways and have little to no say in the matter. Such lack of control is not conducive to satisfaction or well-being (Oldham & Hackman, 2005).

Conversely, transformational leaders provide greater social exchange and willingness to involve team member opinions in decision processes (Avolio et al., 2009; DeRue, Nahrgrang, Wellman, & Humphrey, 2011). As a result, teams with transformational leaders exhibit collective appraisal that is more similar to our conceptualization of collective appraisal than are teams with transactional leaders. Thus, teams with transformational leaders have more ability to act on their appraisals by voicing their concerns and creating differences in which stressors are

addressed by the team and how they are responded to (Detert & Burris, 2007). Coinciding with this, because transformational leaders tend to provide better leader member exchanges (Avolio et al., 2009), it is also more likely for team members to have high collective appraisal because the communication is two-way as opposed to one-way. Work design plays a key role in the health of workers (Baron, 2010; Humphrey, Nahrgrang, & Morgeson, 2007), and through the capability to influence collective appraisal in teams with transformational leaders, team members gain greater design capabilities.

Closing

The relative importance of appraisal in the way stressors are processed within teams has not been reflected by an equitable amount of academic exploration. Given the lack of theory regarding the role of appraisal at the team-level, this has been a forgivable omission. Our aim was to demonstrate the important role of collective appraisal such that researchers can envision a variety of paths towards the inclusion of appraisal in team research moving forward. If we are successful, it would be an appropriate homage to those who have contributed so much to our understanding of individual-level stress (Lazarus & Folkman, 1984).

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APPENDIX D

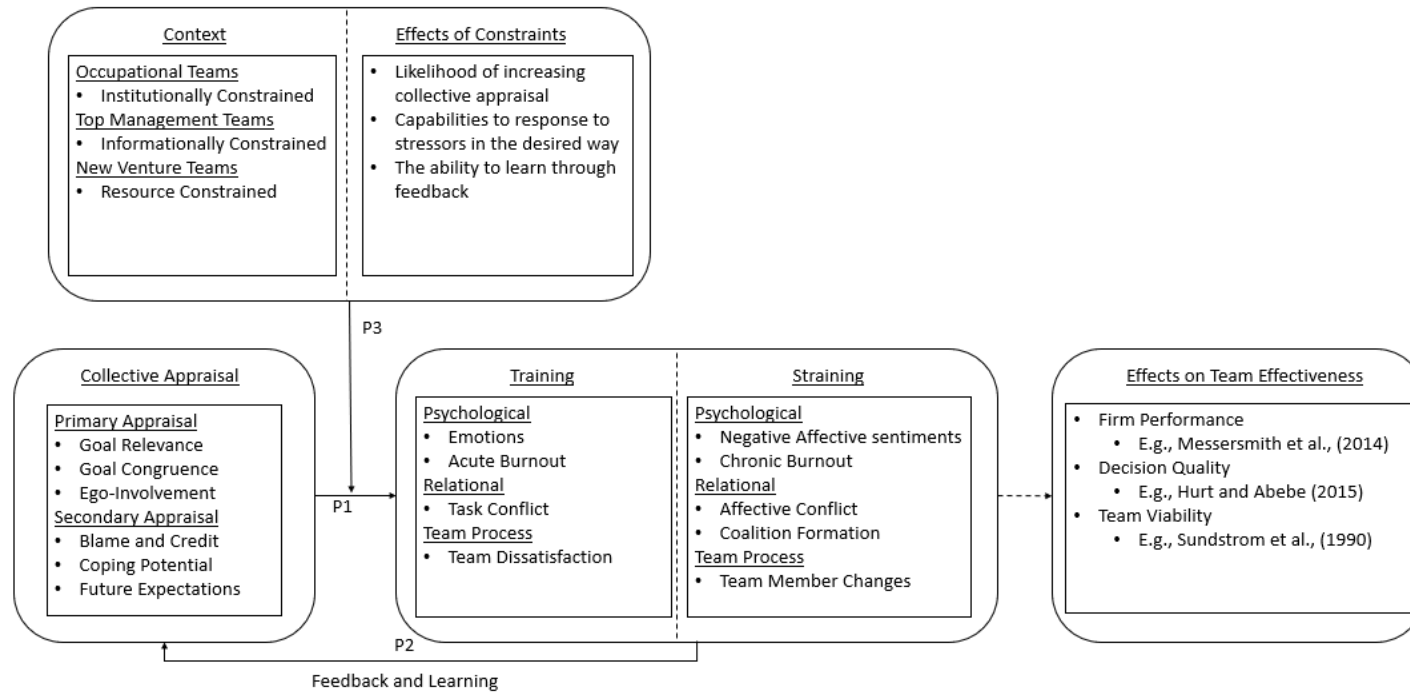


Figure 5: Model of Collective Appraisal

Table 9: Differentiating Appraisal from Other Team Constructs

Term	Definition	Citation
Appraisal	An individual's cognitive assessment of a stressor as a challenge or a threat one's personal well-being	1. Lazarus & Folkman (1984) 2. Lazarus (2001)
Team-Member Exchange	The reciprocity between a member and his or her team with respect to the member's contribution of ideas, feedback, and assistance to other members and, in turn, the member's receipt of information, help, and recognition from other team members	1. Banks, Batchelor, Seers, O'Boyle, Pollack, and Gower (2014) 2. Seers, Petty, and Cashman (1995, pg. 21)
Transactive Memory systems	A set of information possessed by each member of a group combined with a shared awareness of who knows what within the group	1. Peltokorpi (2008, pg. 378) 2. Wegner, Giuliano, and Hertel (1985)
Team Mental Models	Mechanism whereby humans generate descriptions of system purpose and form, explanations of system functioning and observed system states, and predictions of future system states	1. Rouse and Morris (1986, pg. 360) 2. Mathieu, Heffner, Goodwin, Salas, and Cannon-Bowers (2000)

DISCUSSION OF DISSERTATION

The overarching aims of this dissertation were to substantiate the need for renewed interest in appraisal and explore the utility of appraisal in entrepreneur and work settings. This is achieved in two primary ways. First, Essay 1 and Essay 2 make a compelling argument against the challenge-hindrane framework as a universally applicable theory of stress reactions. In so doing, I produce future research opportunities to explore appraisal in stress processes within entrepreneurship (and other weak contexts). Second, I provide a new theory on collective appraisal that provides a range of opportunities to study appraisal across the organizational sciences. I review each of these contributions below, including a discussion of the best opportunities (in my opinion) for future work and some thoughts about the practical utility of appraisal.

The Challenge-Hindrane Framework: Useful but Limited

The challenge-hindrane framework is a useful way of categorizing stressors to understand, generally, the effects of types of stressors on performance and well-being outcomes (LePine et al., 2005). Yet, there are two important limitations that also necessitate the use of appraisal in addition to the challenge-hindrane framework if we hope to understand stress processes completely in the organizational sciences. First, the framework assumes that appraisal of the same source of stress does not vary over time. Yet, I find in Essay 2 that over 60% of the variance in appraisal occurs within individuals over time. That suggests that a cross-sectional study would miss the majority of the variance in appraisal, and hence, would potentially bias the effects on behavioral outcomes. This provides a strong case that understanding the nature of appraisal and reappraisal is important and likely a key driver for successful stress regulation (Lazarus & Folkman, 1984).

Second, the challenge-hindrance framework assumes that challenge stressors are only appraised as challenging and hindrance stressors are only appraised as hindering. Although not presented formally in Essay 2, 31 out of 34 entrepreneurs in the study described what the challenge-hindrance framework would propose is a hindrance stressor. Yet, 35% of the day-level appraisals were assessed as both high-challenge and low-hindrance. Further, Essay 1 revealed both that: (1) entrepreneurs experience conclusively better stress outcomes than do non-entrepreneurs and (2) there is variance across entrepreneurs in some of those effects. Although I argue that appraisal drives these differences, I also contend that it is the weak context of entrepreneurship that facilitates the possibility of appraisal to matter (Klotz et al., 2014). This is important, because it suggests that entrepreneurs do not appraise things differently because of a *'magical stress resilience gene'*, as noted by my astute co-advisor and colleague, but rather because their environments are better. In line with this assertion, to the extent that organizational teams begin to experience more entrepreneurial work settings, we can expect appraisal to matter much more. Put together, this suggests that Brief and George's (1995) assertion that workplace settings have similar economic meaning is likely becoming outdated in a world that is increasingly giving organizational teams (and individuals) more autonomy. For example, globalization and a culture that better emphasizes employee health has facilitated autonomous and/or geographically dispersed teams (as well as other types of teams that I have not mentioned). Further, remote workplaces for individuals are becoming increasingly common. This introduces the need to rigorously test to what extent our traditional assumptions about workplace stress still hold.

Collective Appraisal is Foundational to Organizational Science Phenomena

Because appraisal has been relegated to theory (or not discussed at all!), we are limiting the precision with which we can understand organizational phenomena. Without appraisal, we ultimately develop models that are general in nature and use strong theory to explain relationships that we find. Examples of this include, of course, the challenge-hindranced framework, but are also present in work on task, process, and affective conflict that uses these three generalized definitions of team communication to generate generalized understandings of outcomes. It is also recognizable in work that explains how types of top management team diversity facilitate firm performance (Roh et al., 2019). There are, of course, many other examples.

In each case, appraisal adds precision because it explains variations from core assumptions (in the case of the challenge-hindranced framework), provides more specificity regarding the specific communication (in the case of team conflict), or provides the necessary component of sensemaking (i.e., appraisal) that makes diversity meaningful to top management teams (as in, diversity matters because it facilitates unique and valuable appraisals). These are just some examples of low-hanging fruit, but similar concepts can be applied to a variety of organizational science phenomena.

My aim is not to disparage existing literature; rather, I am merely suggesting that appraisal can help us understand these important organizational issues more than we already do. Perhaps most importantly, additional precision would be helpful for translating theoretical understandings to practical settings, helping practitioners to understand why what we study matters. This is because more generalized frameworks can only provide generalized outcomes that are difficult to correctly apply in the real-world. Again, generalized knowledge is useful, but

we can push these boundaries. For example, using collective appraisal, we could understand which types of disagreement matter more than others, and we could develop specific ways of coping with those disagreements. For example, we would not want to recommend the same coping strategy for a disagreement about the relevance of a stressor as we would for a disagreement about the morality of a potential coping response.

Challenges and Future Research Opportunities

An underlying theme of this dissertation, although not explicitly discussed until now, is the nature of stress itself. Without including appraisal in stress processes, our definition of the term *stress* often becomes the source of stress itself or the outcome of a stressor (Cooper et al., 2001). Both perspectives are problematic. First, defining stress as the independent variable assumes that a certain stressor is inherently stressful to all individuals. In other words, it does not account for the across- or within-individual variation that I have pushed for in various ways throughout this dissertation. Second, defining stress as the dependent variable assumes that there is only one outcome of interest; the ambiguous term *stress*. Of course, Essay 1 shows that stressors may affect types of entrepreneur well-being in different ways. As a result, finding that a stressor leads to negative emotions would be insufficient in categorizing the result as *stress* without also understanding the stressors effects on, for example, physiological and psychological resources as well. Defining stress as a transactional process resolves these concerns because we no longer have to define stress ambiguously within our models. Of course, it does present new issues.

Most notably, appraisal is exceedingly difficult to study. Appraisal can occur subconsciously, and it goes without saying, this aspect will be challenging to capture. Even the conscious component of appraisal, however, has largely remained beyond our grasp. I contend

there are two reasons for this: First, appraisal is hard to measure in the real world. Since appraisal occurs at the point of encountering a stressor, and entails cognition, it requires respondents to provide their thoughts at the moment of encountering the stressor. Advances in technology are beginning to help us to measure cognition physiologically as the brain is activated, but it is currently unclear how we can follow a similar trend in appraisal. Second, and coinciding with measurement, there are still theoretical disagreements about the best conceptualizations of appraisal (Fernando et al., 2017). In part, I contend that this is because while we know people likely appraise situations in different ways from others, and use certain appraisal sets in certain situations, part of our aim as researchers is to develop ways of generalizing effects across populations. This means we often need to develop appraisal sets that are as close as possible to what we think most people may use in a given setting. For example, in Essay 3 I use Lazarus' conceptualization of primary and secondary appraisal, but there are tens or hundreds of other conceptualizations I could have taken. While Lazarus' perspectives have been lauded as one of the most useful (Fernando et al., 2017), it is not perfect. Third, for some reason, scale validations or measurement methods in the organizational sciences have changed the nature of Lazarus' conceptualization of appraisal, sometimes to dramatic effect. This is, of course, evident in the challenge-hindrance framework, which removes the very component of stress (i.e., appraisal) that Lazarus' sought to develop and understand. There is, of course, the validated single-item scale that I use in Essay 2, but this is a reduction of the concepts of appraisal outlined by Lazarus, details of which I discuss in Essay 3. Finally, Schneider et al., (2008) develop a very nice scale which is my preference for studies I am currently developing. However, it too has slightly shifted from the dimensions of appraisal developed by Lazarus, and as a result can predict generalized mood states but not discreet emotions, at least to my

knowledge. It is important to note that these are intentionally skeptical takes on existing appraisal science. All research inherently has limitations and some of them cannot be completely overcome. We must do the best with what is possible. However, I note these limitations because transparent discussions about them provide good paths for finding solutions.

As of now, I would argue the most promising methods for resolving these issues are as follows (in no particular order). First, ethnographic studies are potentially useful because researchers could detect appraisal patterns over time without requiring the respondents to alter their natural behavior. Second, an experience sampling method that pings a respondent for a response when physiological levels rise (of course, with the assistance of a health tracker), indicating that an appraisal has been made. Third, repertory grid technique, which elicits the specific appraisal sets of an individual. Fourth, a verbal protocol, a method that asks respondents to ‘think out loud’ could be quite useful for understanding the appraisal process. Finally, the validation of an individual- and collective-level appraisal scale in accordance with Lazarus (2001), which to my eyes, represents our best currently available conceptualization of appraisal in terms of predicting behaviors in the organizational sciences.

The Practical Utility of Appraisal: Avoiding Pitfalls

Our aim in understanding stress processes ought to be first and foremost about making a tangible change in the world. If what we study cannot provide any use in a real-world organizational setting, then it is very reasonable to ask why we are exploring it to begin with. Specifically, our understanding of stress processes should contribute to the well-being and performance of people in organizational settings. I contend that appraisal is fundamental in this regard. For example, if we continue to ignore appraisal in entrepreneurship, we will effectively continue to generate a list of stressors that promote positive or negative outcomes, and our advice

will be limited to ‘avoid this’ and ‘facilitate that’ in order to have good well-being. Even adding in moderators such as age, entrepreneurial experience, etc., offer only limited value, because they do not explain *why* age or entrepreneurial experience lead to better or worse outcomes. The issue here is that it ignores the most important part of the stress process: the individual. Without helping entrepreneurs to understand *their role* in stress processes, our attempts to help them build ventures in a healthier way will likely be difficult. After all, they cannot simply avoid work-family conflict or role ambiguity. It is also unreasonable to tell entrepreneurs something along the lines of ‘don’t worry! Once you get older, you will be so much better at this!’ They can, however, become aware of how they appraise such circumstances, and the tendencies for such appraisals to facilitate very specific behaviors. This understanding could subsequently allow for better self-regulation.

With that in mind, it is paramount that appraisal is used in a way that avoids victim blaming. As noted by Hobfoll et al., (2018), there are ways in which appraisal could be used by institutions to hurt those within organizational settings instead of helping them. For example, someone experiencing workplace harassment could be told to ‘appraise the situation differently.’ This is, of course, not the way appraisal should be incorporated into organizational settings. Instead, understanding the role of institutions in constraining appraisal could help us understand why victims of workplace harassment may feel too uncomfortable sharing what happened, or why the abuser felt empowered to pursue the action to begin with. This knowledge could lead to tangible workplace changes that promote a healthier culture and atmosphere where workplace harassment can (hopefully) be better limited.

The same concepts apply to other workplace issues. In each case, the solutions should be four-pronged. First, develop institutions that allow individuals to act on their appraisals as

opposed to being constrained to a limited set of behaviors. As noted in Essay 3, the inability to act in accordance with one's appraisal is straining. Second, where institutional constraints do exist, they should be present to limit the possibilities of specific types of behavior, such as: discrimination, harassment, abuse, etc. Third, strong cultures must be cultivated that facilitate the appraisals of acts related to discrimination, harassment, abuse, etc., as inherently threatening to the well-being of the collective workforce and organization, to ensure that those considering engaging in such acts know its unacceptability and find their motivation for doing so to be limited. Finally, those within organizations should develop an understanding of appraisal, as noted in the above paragraph, so that they can regulate their emotional and behavioral reactions in healthier ways. In Hobfoll et al's (2018) scathing critique of appraisal, they assume that practitioners will only adopt the fourth approach I have noted. That is why I list it last; because, as noted by Hobfoll and colleagues, appraisal can be paramount to victim blaming if used inappropriately. Specifically, it is victim-blaming if used only as a mechanism to control individual-level behavior, without regard for the purpose with which we study stress processes to begin with: to create healthier and better performing individuals within organizations. It is the development of healthier and better performing individuals within organizations, alongside the treasures of academic writing (i.e., producing novel and interesting theory), that drive my work in this dissertation and moving forward.

VITA

Michael Lerman was born in Philadelphia, PA, to the parents of Joel and Dianne Lerman. He has eight siblings. He moved to Bloomington, IL at the age of 12 where he attended Grove Elementary, Chiddix Junior High, and Normal Community High. He then attended Illinois State University where he pursued a Master's in Accounting. Michael decided to pursue a PhD in Management, spurred by his experiences working with various small businesses. He accepted a graduate research assistantship at The University of Tennessee Knoxville, in the Strategy and Organizations Program in the Management Department. He graduated in May 2019, and is starting his career at Iowa State University in Ames, IA.