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FINDING THE SILVER LINING: THE ROLE OF AFFECT AND ADVERSITY IN
ENTREPRENEURIAL VENTURING

By

Lauren A. Zettel

A Dissertation
Submitted to the Faculty of the
College of Business
In Partial Fulfillment of the Requirements
for the Degree of

Doctor of Philosophy
in Entrepreneurship

Department of Management and Entrepreneurship
University of Louisville
Louisville, Kentucky

May 2022

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A Dissertation Approved on

April 22, 2022

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DEDICATION

This dissertation is dedicated to my husband, Tom Zettel, for his unwavering support and encouragement.

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I would like to thank my dissertation committee chair, Dr. Robert Garrett, for his support and guidance through this process. I would also like to thank Dr. Carl Maertz, Dr. James Fiet, and Dr. Dean Shepherd for their instruction and assistance during my time at the University of Louisville.

ABSTRACT

FINDING THE SILVER LINING: THE ROLE OF AFFECT AND ADVERSITY IN ENTREPRENEURIAL VENTURING

Lauren A. Zettel

April 22, 2022

Motivated goal pursuit is a foundational concept in entrepreneurial venturing. Entrepreneurs set goals for their ventures, and their persistence in pursuing these goals ultimately impacts the success of their venture. Many of the explanations of motivation in goal pursuit have focused on the benefits of steady progress and positive emotions. However, entrepreneurs inevitably face adversity and setbacks which, in turn, beget negative emotions. It is yet unclear what role adversity and the ensuing negative emotions may have in motivating entrepreneurs. In order to extend our theoretical understanding of affect and adversity in entrepreneurial venturing, this dissertation draws on the existing literature on emotion, resilience, and self-regulation to develop hypotheses related to the effect of these constructs on the three behavioral outcomes of motivation: direction, intensity, and persistence of effort.

This dissertation is divided into four chapters. The first provides an overview of the existing theoretical perspectives that have been used to explain how entrepreneurs maintain motivation in times of challenge. From this, chapter one derives one overarching research question, and two research sub-questions.

Chapter two presents the empirical investigation of the first research sub-question

and draws on regulatory focus theory to offer hypotheses related to the impact of baseline and situationally induced affect in motivated goal pursuit. The study uses a quasi-experimental methodology to measure aspiring entrepreneurs' motivational response to negative feedback in goal pursuit in real-time. The third chapter comprises the empirical investigation of the second research sub-question, and seeks to elucidate how the positive and negative emotions associated with psychological resilience impact entrepreneurs' motivated goal pursuit over time. The study tracks nascent entrepreneurs using a daily-diary methodology over the course of two weeks, measuring both their affective and motivational responses to a self-reported venturing challenge.

The fourth and final chapter considers the results of both studies together, to offer a response to the overarching research question posed in chapter one. In all, this research demonstrates that negative emotions have an important role to play in responding to and overcoming adversity and suggests that they may function in tandem with positive emotions to spur entrepreneurs forward.

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS	iv
ABSTRACT	v
LIST OF TABLES	ix
LIST OF FIGURES	x
CHAPTER 1: INTRODUCTION AND THEORETICAL BACKGROUND.....	1
CHAPTER 2: POSITIVE AND NEGATIVE AFFECT FOLLOWING AN ADVERSE EXPERIENCE – STUDY 1	18
Introduction.....	18
Positive and Negative Emotions in Entrepreneurship	21
Hypothesis Development	24
Methods.....	37
Analysis and Results	48
Discussion and Conclusion	54
CHAPTER 3: ENTREPRENEURIAL RESILIENCE AND RESILIENT MOTIVATIONAL RESPONSES TO ADVERSITY – STUDY 2	60
Introduction.....	60
Theoretical Background.....	63
Hypothesis Development	68
Methods.....	80

Analysis and Results	93
Discussion and Conclusion	110
CHAPTER 4: GENERAL DISCUSSION AND CONCLUSION	117
REFERENCES	123
APPENDIX.....	144
CURRICULUM VITAE.....	163

LIST OF TABLES

TABLE	PAGE
1. Correlations – Study 1	47
2. Tests of Hypotheses – Study 1	51
3. Robustness Check – Study 1	53
4. Correlations – Study 2	92
5. CCA Results – Study 2	96
6. Summary of Hypothesis Tests – Study 2	99
7. CCA Results of Exploratory Model – Study 2	107

LIST OF FIGURES

FIGURE	PAGE
1. Interaction Between Dispositional Negative Affect and Regulatory Focus	33
2. Interaction Between Dispositional Positive Affect and Regulatory Focus.....	36
3. Research Model – Study 1	37
4. Significant Interaction Effect (H4c).....	52
5. Significant Interaction Effect – Robustness Check	54
6. Research Model – Study 2	80
7. Types of Challenges Mentioned	81
8. Data Collection Schedule.....	83
9. Model Results	98
10. Alternative Model 1	103
11. Alternative Model 2	105
12. Exploratory Model.....	109

CHAPTER 1

INTRODUCTION AND THEORETICAL BACKGROUND

Human motivation is directed toward setting and achieving goals (Mitchell, 1997; Seo, Feldman-Barrett, & Bartunek, 2004), and is channeled into behaviors aimed at reaching that end (Renko, Kroeck, & Bullough, 2012). Nascent entrepreneurs are exemplars of this process, in that they set and are motivated to achieve goals related to the progress and outcomes of the new businesses they envision (Baron, Mueller, & Wolfe, 2016; Laguna, Alessandri, & Caprara, 2016). The overarching goal of an entrepreneur could be as broad as successfully establishing a new venture (Cardon & Kirk, 2015). This principal goal, however, will include any number of sub-goals and related activities, such as securing financing, recruiting employees, promoting the new firm, and making sales to new customers (Baron et al., 2016; Cardon & Kirk, 2015; Carter, Gartner, & Reynolds, 1996; Laguna et al., 2016).

Yet, it is inevitable that entrepreneurs will encounter challenges or adverse circumstances that stand in the way of achieving those goals (Foo, Uy, & Murnieks, 2015; Frese, 2009). Research has shown that entrepreneurs experience negative emotions in response to a perceived lack of progress (Shepherd, Patzelt, Williams, & Warnecke, 2014), are less likely to persist in their venturing efforts in the face of high adversity (Holland & Shepherd, 2013), and also that they are less likely to exert effort when they perceive high variability in their progress (Uy, Foo, & Ilies, 2015). These empirical

findings align with several existing theories on goal pursuit, which predict that people may withdraw or change course in the face of negative feedback if it sufficiently reduces the expectancy of attaining the goal (e.g., Carver & Scheier, 1998; Hyland, 1988; Klein, 1989). Conversely, progress in the form of ‘small wins’ sustains effort (Grant & Patil, 2012; Uy et al., 2015; Weick, 1984). To better understand why some entrepreneurs are able to persist towards their goals, in spite of challenges and adversity, scholars have often engaged theories of affect and cognition.

Affect, which includes both diffuse moods and emotions elicited by specific stimuli, can vary in terms of activation and subjective pleasantness, or valence (Barsade, 2002; Cardon, Foo, Shepherd, & Wiklund, 2012; Feldman-Barrett, Mesquita, Ochsner, & Gross, 2007; Feldman-Barrett & Russell, 1998; Uy et al., 2015). Emotions, both positive and negative, elicit cognitive and behavioral responses, and essentially prime or drive humans to take particular actions (Frijda, 1987; Roseman, 2011). Positive emotions can be advantageous in many situations, including entrepreneurial goal pursuit, in that they encourage approach behavior, continued action, and broadened cognitive processing (Carver & Scheier, 1990; Clore, 1994; Fredrickson, 2004; Frijda, 1994; Roseman, 2011). Research has consistently demonstrated that positive feelings and affect foster creativity and flexible thinking, persistence, motivation, task performance, and effective coping with stress (Aspinwall & Taylor, 1997; Erez & Isen, 2002; Fredrickson & Joiner, 2002; Isen, Daubman, & Nowicki, 1987). Perhaps because of these beneficial effects, positive emotions and affect have been used to explain why people in general, and entrepreneurs specifically, are motivated to continue the pursuit of their goals (Seo, Bartunek, &

Feldman Barrett, 2010; e.g., Seo et al., 2004), even in the face of adverse circumstances like goal failure.

Conversely, negative emotions, including those arising from negative feedback and other forms of adversity, are purported to have damaging effects on motivation and action. Negative core affect induces a defensive behavioral direction, and decreases the persistence and intensity of effort in work motivation (Seo et al., 2010, 2004). Control theory similarly suggests that negative feedback or insufficient progress in goal pursuit elicits negative affective responses and, in some cases, can lead individuals to withdraw or change course, which is in stark contrast to the predicted impact of pleasant core affective experiences (Carver & Scheier, 1998; Hyland, 1988; Klein, 1989; Seo et al., 2004). Furthermore, negative emotions narrow attention, and constrain the array of possible actions that an individual considers (Fredrickson, 1998, 2001). Distress, sadness, fear, and regret cause an individual to withdraw from the stimulus or situation as well (Roseman, 2011).

The emotional perspective of entrepreneurial motivation in times of challenge has largely relied on the idea that positive emotions, arising from success and small wins, are motivating, while negative emotions, arising from challenges and setbacks, are demotivating (Holland & Garrett, 2015; Hyland, 1988; Klein, 1989; Shepherd et al., 2014; Uy et al., 2015; Weick, 1984). Following this, theories that draw on positive emotion, including the broaden-and-build theory of positive emotions, entrepreneurial self-efficacy, and entrepreneurial passion, have dominated analyses of motivation and goal pursuit in entrepreneurship. Yet, scholars recognize that our understanding of the role of negative emotions, and their interactions with positive emotions, are largely

incomplete (Shepherd, 2015). Therefore, I ask *how can adversity, like negative feedback and goal failure, and the accompanying negative emotional response, motivate entrepreneurs to persist in pursuing their venture goals?* The primary aim of this dissertation is to broaden our understanding of the role of negative emotions in entrepreneurial motivation, particularly under challenging circumstances.

To that end, it is first necessary to review the existing theoretical landscape of this topic. In the following paragraphs, I briefly explore several theories that draw on emotion, and have been used to explain entrepreneurial motivation. I investigate the theories of entrepreneurial passion, the broaden-and-build theory of positive emotions, the concept of resilience, and the construct of entrepreneurial self-efficacy, which have primarily highlighted the benefit of positive emotions in motivation. Then, I turn to two additional theories that take a more balanced approach to the role of positive and negative emotion in motivation: regulatory focus theory and the affect-as-information perspective. In each section, I review the affective mechanisms underpinning the theory, and provide examples of applications of these theories in the entrepreneurship literature. In the end, I propose that drawing on elements of several of these theories will help to deepen our understanding of emotion in entrepreneurial goal pursuit, and particularly the important role that adversity and negative emotions play in this process.

THEORETICAL PERSPECTIVES HIGHLIGHTING POSITIVE EMOTIONS IN MOTIVATION

Entrepreneurial Passion

The experience of entrepreneurial passion arises from engagement with activities that validate the individual's role as an entrepreneur, and is embodied in enduring,

intense positive feelings (Cardon, Wincent, Singh, & Drnovsek, 2009). Entrepreneurial passion can be felt for the entrepreneurial roles of inventing, founding a venture, or developing a venture. Passion for these roles comes not only from the intense positive feelings, but also from the degree that the entrepreneur finds any or all of these roles central to his or her identity (Cardon et al., 2009).

Cardon and colleagues (2009) initially connected entrepreneurial passion theoretically to goal-related cognitions, which were in turn expected to positively impact entrepreneurial behaviors including creative problem solving and persistence. Indeed, later empirical research affirmed this connection (Cardon, Gregoire, Stevens, & Patel, 2013; Cardon & Kirk, 2015). In developing a measure of entrepreneurial passion, Cardon and colleagues (2013) noted a significant, positive connection between the intense positive feelings and identity centrality of components of passion, and self-reported measures of the tendency to persist. Researchers further pursued this relationship and found that entrepreneurial passion for both inventing and founding mediated the connection between entrepreneurial self-efficacy and self-reported measures of persistence (Cardon & Kirk, 2015).

The connection between entrepreneurial passion and motivation relies strongly on positive emotions as a mechanism. As the entrepreneur engages with tasks that reaffirm his or her self-concept as an entrepreneur, they experience intense positive feelings, which fuel them to keep moving forward in their venturing efforts. Although scholars have also suggested pitfalls of passion (e.g., persisting with a failing course of action (Newman, Obschonka, Moeller, & Chandan, 2021), or escalation of commitment (Cardon, Glauser, & Murnieks, 2017; Cardon, Zietsma, Sparito, Matherne, & Davis,

2005)), the general perspective of entrepreneurial passion is that this construct, and the positive emotions associated with it, are beneficial for motivation. However, passion scholars largely leave the role of negative emotions in motivation untouched, which gives an incomplete picture of how emotions fuel motivation in adverse circumstances.

Broaden-and-Build Theory of Positive Emotions

The broaden-and-build theory holds that positive emotions expand the array of actions or behaviors that come to mind. Over time, the exploration and learning that result from the behavioral tendencies associated with positive emotions are purported to build the social and cognitive resources available to an individual (Fredrickson, 1998, 2004). Under this perspective, positive emotions, which often arise as a result of perceived progress towards one's goals, are motivating in that they encourage an individual to continue with a course of action (Fredrickson, 2004; Izard, 1977).

Drawing on this idea, Seo and colleagues (2010, 2004) proposed and found that the pleasantness of reported emotions was positively related to perceived progress on a task, and this, in turn was connected to the persistence of effort in the task. Researchers have observed similar effects in the domain of entrepreneurship. Using a longitudinal design, Foo, Uy, and Baron (2009) noted a significant relationship between positive affect and the amount of effort devoted to venture tasks beyond what was immediately required of the entrepreneur. In some cases, this effect was mediated by the entrepreneur's temporal focus on the future.

Although the broaden-and-build theory highlights the beneficial effect of positive emotions on motivation, it also perfunctorily touches on the role of negative emotions. This theory predicts that negative emotions have a constraining effect on cognitions, and

restrict the ability to think in an integrative fashion. Furthermore, negative emotions are thought to push people to withdraw from a situation, which is detrimental in goal pursuit. In all, the broaden-and-build theory of positive emotions highlights the beneficial impact of positive emotions on motivation and cognition, while suggesting potential detriments of negative emotions in this capacity (Fredrickson, 1998, 2001).

Psychological Resilience

Resilience has become a construct of popular and scholarly interest, particularly in the wake of the global coronavirus pandemic. Resilience is the ability to “bounce back” and adapt to stressful and adverse situations (Block & Block, 1980; Block & Kremen, 1996; Lazarus, 1993; Tugade & Fredrickson, 2004). The idea of resilience has also been utilized to explain how and why people maintain motivation and continue working toward their goals. There is still a great deal that is unknown about how resilience functions. However, one of the primary perspectives of resilience draws on the tenets of the broaden-and-build theory (Hartmann, Backmann, Newman, Brykman, & Pidduck, 2022), and suggests that resilience operates, at least in part, through positive emotions. Tugade and Fredrickson (2004) theorized and found that resilient individuals draw on positive emotions to overcome the negative emotions elicited by a stressful event. Hence, researchers suggest that resilient individuals may actually become adept at using positive emotions in challenging times to overcome stressors (Tugade, Fredrickson, & Feldman-Barrett, 2004).

This perspective on the use of positive emotions in resilience processes has also been used to explain the ability of nascent entrepreneurs to persist in their venturing efforts. Hayward and colleagues (2010) theorized that positive emotions felt by

confident entrepreneurs should help to build the emotional, cognitive, team, and financial resilience of entrepreneurs who had experienced a venture failure. They proposed that these resilience resources would, in turn, improve the ability and likelihood that these entrepreneurs would go on to found a subsequent venture (Hayward, Forster, Sarasvathy, & Fredrickson, 2010). Similarly, scholars theorized that, since resilient individuals experience higher levels of positive emotions, they should also think more broadly about how to manage venturing challenges. This should, in turn, lead to proactivity, and increased chances of venture survival. Chadwick and Raver (2018) tested these hypotheses in a sample of startup founders over time, and found support for their theorizing.

Again, theoretical explanations of the role of resilience in motivated goal pursuit have relied on the benefits of positive emotions. The literature on psychological resilience, particularly in the domain of entrepreneurship, has little, if anything to say about the impact of negative emotions arising from challenging situations, which actually give rise to the need for resilient responding. Williams and colleagues (2017) hinted at the potential for the dominant positive emotions associated with resilience to actually hinder sensemaking efforts in challenging times. Still, the broaden-and-build perspective of psychological resilience has yet to fully investigate the role and salience of negative emotions in responding to challenges.

Entrepreneurial Self-Efficacy and Confidence

Entrepreneurial self-efficacy is the belief that one can complete tasks essential to successful business venturing (Zhao, Hills, & Seibert, 2005). Hayward and colleagues note that confidence is the "...emotion-laden belief that entrepreneurs have about

their ability to ensure the success of their focal venture...” and purport that confidence in one’s entrepreneurial abilities bears resemblance to the construct of entrepreneurial self-efficacy (2006: 570). Researchers posit that confidence is associated with positive emotions, because it creates excitement and expectation that the entrepreneur can achieve his or her goals, and also reduces uncertainty about the future outcome. This results, in theory, in higher positive emotionality (Hayward et al., 2010). Confidence, or rather overconfidence, as well as self-efficacy, have also been indicated as explanations as to why entrepreneurs persist (Cardon & Kirk, 2015; Hayward et al., 2010, 2006; Hechavarria, Renko, & Matthews, 2012).

Theoretically, scholars have suggested that even after their venture has failed, entrepreneurs with greater confidence will experience positive emotions that broaden thought-action repertoires and build personal resources, thus contributing to resilience and the likelihood of founding a subsequent venture (Fredrickson, 2001; Hayward et al., 2010). Although these mechanisms were not empirically tested, the positive relationship between entrepreneurial self-efficacy and entrepreneurial persistence has found empirical support in other research. Notably, Cardon and Kirk (2015) discovered that entrepreneurial self-efficacy, in part through its impact on passion, was beneficial to persistence. Hechavarria and colleagues (2012) also observed that over time, entrepreneurs with greater self-efficacy persisted longer in their venturing efforts. Again, positive emotions underlying confidence and entrepreneurial self-efficacy are thought to be key mechanisms in entrepreneurs’ motivation to persist.

BALANCED THEORETICAL PERSPECTIVES ON EMOTIONS IN MOTIVATION

Regulatory Focus Theory

Though the previous theories focused primarily on the positive impact of positive emotions, the following perspectives take a more balanced approach in that they also highlight the role of negative emotions in motivational processes. The first of these is regulatory focus theory, which holds that individuals self-regulate and pursue their goals in one of two frames of mind: a prevention focus or a promotion focus. Under a promotion focus, an individual pursues their goals as an ‘ought’ or aspiration, while under a prevention focus, the goal is seen as a ‘must’ or an obligation (Higgins, 1997, 1998). Interestingly, when negative feedback regarding goal progress is received, a promotion-focused individual will experience low-activation negative emotions, while a prevention-focused individual will experience high-activation negative emotions. In this case, the negative feedback is thought to be particularly motivating to the prevention-focused individual. The reverse holds true for the positive emotions experienced when the individual receives positive feedback, in that a promotion-focused individual is more motivated because they experience high-activation positive emotions (Brockner & Higgins, 2001; Higgins & Cornwell, 2016; Idson & Higgins, 2000).

Although used much less frequently in the entrepreneurship literature, there is some initial empirical evidence related to the impact of regulatory focus on motivation. Yet, this study emphasized the positive impact of a promotion focus. Hmieleski and Baron (2008) found that a higher promotion focus resulted in new venture growth, in part because of its positive impact on the entrepreneurs’ willingness to adapt their business

idea. This adaptation could be understood as a change in the entrepreneurs' goal, or it could represent a change in the directional component of motivation. Yet, the authors left untouched the affective underpinnings of the theory in their explanations. Even though regulatory focus theory has the potential to explain the motivational impact of adversity and negative emotions, this effect has yet to be examined in the entrepreneurship literature.

Affect-as-Information Perspective

Finally, the affect-as-information perspective suggests that both positive and negative emotions are important in that they convey information (Schwarz & Clore, 1983), including information about goal progress (Carver, 2003; Carver & Scheier, 1990). Positive emotions signal that sufficient progress is being made, and hence, the individual can maintain course or direct their attention to other, more pressing tasks. Conversely, negative emotions indicate an issue, or that insufficient progress is being made toward the goal. Therefore, these emotions signal to an individual that they need to devote their attention to the issue in order to get 'back on track'. In all, both positive and negative emotions provide information to individuals about goal progress that help them to most efficiently allocate their time and attention to tasks (Carver, 2003).

Yet, few entrepreneurship researchers have empirically studied the usefulness of negative emotions, using this perspective. An exception to this is a longitudinal study in which scholars found that negative affect had a positive effect on the amount of effort an entrepreneur devoted to venture tasks that were immediately required. The researchers theorized that, following the affect-as-information perspective, negative emotions signaled to the study participants that insufficient progress was being made. This, in turn,

encouraged them to devote more effort to those tasks that required immediate attention (Foo et al., 2009). Another study that merits attention here did not examine motivation to persist, but rather the ability of entrepreneurs to move forward following the failure of their venture. The qualitative data in this study revealed that, although positive emotions informed sensemaking of the event, negative emotions were essential for motivating an entrepreneur to process and make sense of their business's failure (Byrne & Shepherd, 2015). The authors did not specifically invoke the affect-as-information perspective, yet the results align with the idea that negative emotions direct attention to issues that need to be managed (e.g., making sense of business failure in order to move forward with life). This hints at the idea that these negative emotions may be essential to directing entrepreneurs' attention to challenges that must be addressed in the process of entrepreneurial venturing. Still, the affect-as-information perspective has not been utilized to its potential in this capacity.

OVERVIEW OF CURRENT RESEARCH

In sum, the existing literature on the role of emotion in entrepreneurial motivation has tended to (1) draw on theoretical perspectives that emphasize the benefit of positive emotions in motivation processes, and (2) either take as given that negative emotions are detrimental to motivational processes, or ignore the role of negative emotions altogether. Yet, it is inevitable that entrepreneurs will encounter challenges as they work to establish their ventures, and these challenges typically elicit negative, not positive, emotional responses. This leaves entrepreneurs with an incomplete understanding as to how to comprehend and manage setbacks and negative emotions in goal-directed, motivational processes. Therefore, as noted, the overarching research question in this dissertation is

how can adversity, like negative feedback and goal failure, and the accompanying negative emotional response, motivate entrepreneurs to persist in pursuing their venture goals?

In this dissertation, I seek to extend the idea that adversity, goal failure, and negative emotions may not be ‘all bad’, particularly in the case of entrepreneurial venturing. Rather, I suggest that both positive and negative emotions have important roles to play in entrepreneurial motivation. To do so, I draw on several of the theories noted above, utilizing the strengths of each in tandem with the others. In particular, I draw on the role of negative emotions in motivation outlined by regulatory focus theory and the affect-as-information perspective to show how these may work in tandem with the effects of positive emotions, suggested by the broaden-and-build theory and perspectives of psychological resilience. I conduct this research in two distinct, yet related empirical inquiries, outlined below.

Extending the qualitative idea of the complementarity of positive and negative affect outlined by Byrne and Shepherd (2015) to the quantitative domain of motivation and goal pursuit, I first ask *how do negative and positive affect simultaneously impact motivation following adversity such as negative feedback?* To answer this question, I invoke regulatory focus theory (Higgins, 1997, 1998), which holds that individuals’ regulatory focus impacts how they experience emotions following failure and success (Brockner & Higgins, 2001). As noted, individuals who are prevention-focused (as opposed to promotion-focused) concentrate on avoiding losses (rather than achieving gains), and thus experience more intense negative emotions following failure (Brockner & Higgins, 2001).

These individuals should be able to harness the resulting high-activation negative emotions, and direct them toward the pursuit of their goal (Brockner & Higgins, 2001; Brockner, Higgins, & Low, 2004). Nevertheless, it is possible that negative emotions have a differential effect on the three behavioral components of motivation: direction of effort, persistence of effort, and intensity of effort (Campbell & Pritchard, 1976; Kanfer, 1990). Although the activation of negative emotions can encourage effort and persistence, they may also narrow the subsequent range of behaviors that the individual considers (Fredrickson, 2001), thereby preventing a change in the direction of action. Here, it is possible that prevention-focused individuals can benefit from an underlying dispositional positive affect, as positive affect can broaden thought-action repertoires and foster creative problem-solving (Aspinwall & Taylor, 1997; Fredrickson, 2001; Isen et al., 1987). To test these ideas, I conduct a quasi-experiment to explore the moderating impact of dispositional positive and negative affect on the relationship between regulatory focus and the three components of motivation following a setback. Chiefly, my intent in Study 1 is to explore how negative emotions arising from a goal failure, in spite of their detrimental effects, can foster motivation and can also be complemented by positive emotions.

Study number two attempts to explore how entrepreneurial resilience impacts entrepreneurs' responses to adversity in the context of venturing. To that end, I draw on resilience theory which suggests that individuals have a malleable capacity to bounce back after encountering adversity (Masten, 2001; Tugade & Fredrickson, 2004). Although research has revealed that one of the primary mechanisms of resilience is the use of positive emotions (Tugade & Fredrickson, 2004, 2007), competing perspectives on

the cognitive and motivational impact of these positive emotions offer contradictory implications as to their effect on the three behavioral outcomes of motivation following adversity. Therefore, in Study 2 I ask, *how does entrepreneurial resilience impact entrepreneurs' motivational responses to specific instances of adversity?*

The affect-as-information perspective indicates that positive emotions direct attention and effort away from the task at hand (Carver, 2003; Foo et al., 2009), and should thereby restrict entrepreneur's ability to learn from, and subsequently change their behavior in the face of adversity. Furthermore, from this perspective, positive emotions should signal to entrepreneurs that they can safely direct their efforts toward other goals (Carver & Scheier, 1990, 2010; Foo et al., 2009). However, the broaden-and-build theory of positive emotions, and its accompanying perspective on resilience, essentially indicates the opposite; that is, that positive emotions should encourage learning through broadened and integrative thinking patterns, and should also energize and encourage continued effort toward goals (Fredrickson, 2001; Fredrickson & Levenson, 1998; Tugade & Fredrickson, 2004, 2007). I attempt to reconcile these perspectives to demonstrate that resilient entrepreneurs, through their ability to learn from adversity and maintain higher levels of goal value and expectancy following adversity, should also demonstrate relatively more flexible and higher levels of goal motivation following adversity. I also explore the underlying emotional mechanisms, including the function of negative emotions, proposed to facilitate these processes. I test these ideas using a longitudinal, daily diary study with nascent entrepreneurs.

Again, the nascent entrepreneurship literature has generally taken adversity and negative feedback to be damaging to entrepreneurs' progress. The primary contribution

of the proposed research, in general, is to offer a challenge to this existing notion in the domain of entrepreneurship that ‘bad is bad’ by suggesting that, in certain circumstances, negative emotions stemming from adverse experiences can ultimately have a positive impact on motivation, if an individual can also harness the accompanying negative emotional activation to fuel their own motivation (Higgins, 1997, 1998).

Furthermore, this research offers a challenge to the primary focus on positive emotions as the driver of entrepreneurial persistence in the face of adversity (see Foo et al., 2009 for an exception). As noted, existing emotion-centered theories of persistence in the entrepreneurship literature have concentrated on the activation of positive emotions, such as those associated with entrepreneurial passion, confidence, and self-efficacy (Cardon & Kirk, 2015; Cardon et al., 2009; Hayward et al., 2010, 2006; Hechavarria et al., 2012). Although theoretical work has posited that there may be a down-side to positive emotionality (Baron, Hmieleski, & Henry, 2012), this research takes a different approach to examine the up-side of negative emotionality. This research demonstrates how negative emotionality, particularly that arising from adversity or goal failures, can be harnessed to motivate entrepreneurs to push forward, as well as how it may complement or work in tandem with positive emotionality (Brockner et al., 2004). In doing so, these studies answer Shepherd’s (2015) call to explore how entrepreneurs may maximize the benefits and minimize the costs of positive and negative emotions, and to better understand under what conditions negative emotions can facilitate entrepreneurial progress.

Finally, another contribution of this research is to the understanding of the micro-processes involved in entrepreneurial motivation and persistence decisions in the face of

adversity. Past work has looked at determinants of the high-level question of whether to abandon or continue with venturing efforts (e.g., Hechavarria et al., 2012; Holland & Garrett, 2015; Holland & Shepherd, 2013; Klyver, Jonig, & Steffens, 2018; Zhu, Hsu, Burmeister-Lamp, & Fan, 2018). This work has, no doubt, produced valuable insights; nonetheless, persistence decisions are rarely made in such a final form. Rather, the ultimate persistence decision is more realistically comprised of the accumulation of discrete adverse events, and entrepreneurs' responses to those challenges and failures. Through examining entrepreneurs' cognitive and emotional processing of individual goal failure events, I am able to offer a more nuanced answer to the important question of why some entrepreneurs abandon their venturing efforts, and why others persist (Cardon & Kirk, 2015). This is salient because, only through understanding the mechanisms and details of these decisions can we hope to offer an avenue for practitioners to meta-cognitively evaluate and manipulate their decision-making and behaviors.

CHAPTER 2
POSITIVE AND NEGATIVE AFFECT FOLLOWING AN ADVERSE EXPERIENCE –
STUDY 1

INTRODUCTION

Although motivation is not directly observable, it is reflected in behavioral outcomes such as the direction, intensity, and persistence of actions taken to achieve a goal (Campbell & Pritchard, 1976; Hechavarria et al., 2012; Kanfer, 1990; Seo et al., 2004). The motivation required to successfully establish a new venture is a fundamental concept in the field of entrepreneurship research (e.g., Renko et al., 2012; Zhu et al., 2018). Noting that around 60% of new businesses do not survive even six years (Hayward et al., 2006; Headd, 2003), scholars have indicated that motivation, and in particular, persistence, are critical to ensuring success in entrepreneurship (Renko et al., 2012; Wu, Matthews, & Dagher, 2007). To that end, research has often sought to understand what fosters motivation in people in general, and in entrepreneurs in particular. Perhaps not surprisingly, empirical investigations have confirmed that motivation and persistence are facilitated by low levels of adversity (Zhu et al., 2018), and by the perception of making progress, otherwise known as ‘small wins’ (Uy et al., 2015; Weick, 1984). Positive affect and emotions, which are often outcomes of perceived progress toward a goal (Brockner & Higgins, 2001; Weiner, 1985), also enhance motivation (Cardon et al., 2009; Erez & Isen, 2002). Conversely, researchers have discovered that motivation and persistence are hindered by the presence of adversity

(Holland & Shepherd, 2013), the perception of inconsistent progress toward the goal (Carver & Scheier, 1998; Hyland, 1988; Klein, 1989; Seo et al., 2004) and the negative emotions that arise from a negative feedback about goal progress (Seo et al., 2010, 2004; Weiner, 1985).

Given that research has shown that goal progress and positive emotions foster entrepreneurs' motivation, it is natural that a number of studies have focused on the motivational impact of positive emotions such as those associated with entrepreneurial passion (Cardon & Kirk, 2015; Cardon et al., 2009) and confidence (Hayward et al., 2010, 2006; Hechavarria et al., 2012). However, in the context of nascent entrepreneurial venturing, it is yet unclear how or if entrepreneurs can optimally manage the adversity and subsequent negative emotions that are certain to arise in the process of starting a venture (Foo et al., 2015; Frese, 2009). Interestingly, qualitative research conducted on entrepreneurs' recovery from the ultimate failure of their business suggests that negative and positive emotions work in tandem to motivate and inform sensemaking and recovery (Byrne & Shepherd, 2015). Yet, it is unclear if there might be a similar complementarity between differently-valenced emotions in dealing with everyday adversity, which can entail negative feedback (e.g., Holland & Shepherd, 2013), in the venturing process. In essence, and as noted by Shepherd (2015), the study of entrepreneurship is lacking a comprehensive evaluation of the impact of negative emotions on motivation, including whether or not there may be instances in which negative emotions motivate entrepreneurs, and also how entrepreneurs can harness the benefits of positive *and* negative emotions. Therefore, in this research, I seek to understand *how do negative and*

positive affect simultaneously impact motivation following adversity such as negative feedback?

In search of an answer to this question, it is necessary to look beyond the just the pleasantness, or valence, of the emotion to also consider its activation (Foo et al., 2015). Further, it is likely that people in general, and entrepreneurs in particular, experience more than one emotion at a time (Podoyntsyna, Van der Bij, & Song, 2012), and therefore both state-like emotions arising from an event, as well as trait-like affect that is more stable over time (Baron, 2008), should be considered. To that end, I draw on two theoretical perspectives to examine the impact of both positive and negative emotions following the receipt of negative feedback about progress toward a goal that is important to successfully establishing a new venture. The broaden-and-build theory of positive emotions (Fredrickson, 1998, 2001) asserts that positive emotions are useful in that they broaden thought-action repertoires and encourage persistent action (Fredrickson, 2004). Somewhat conversely, regulatory focus theory holds that, in certain circumstances, negative affect can actually foster motivation and goal pursuit (Higgins, 1998; Van-Dijk & Kluger, 2004). I examine the combined implications of these seemingly divergent perspectives, with particular attention to activation and momentary versus dispositional emotions, to capture a more holistic picture of the function of emotion in nascent entrepreneurial venturing and goal striving.

This paper will proceed as follows. First, I briefly review some of the existing entrepreneurship literature on the influence of positive and negative emotions. Next, I draw on both the broaden-and-build theory of positive emotion and regulatory focus theory to develop hypotheses about entrepreneurs' emotional responses to negative

feedback, and the impact of these emotions on the three behavioral components of motivation. I test the hypotheses using a quasi-experimental design, intended to manipulate respondents' perception of adversity and negative feedback, and capture their real-time motivational responses. Finally, I discuss the results and implications for the theoretical understanding of negative emotion in entrepreneurial venturing, and consider practical implications for entrepreneurs.

POSITIVE AND NEGATIVE EMOTIONS IN ENTREPRENEURSHIP

The existing literature on motivation in entrepreneurship has often adhered to the age-old principle that individuals are motivated to approach pleasure and avoid pain (e.g., Freud, 1952). Specifically, the experience of positively-valenced, or pleasant emotions, like those associated with confidence and entrepreneurial passion, are purported to strengthen components of motivation (Cardon & Kirk, 2015; Cardon et al., 2009; Hayward et al., 2010, 2006). For instance, Cardon and Kirk (2015) theorize that those who feel efficacious in undertaking entrepreneurial tasks will feel greater passion for those tasks, and that the positive emotions embodying that passion should increase persistence in entrepreneurial venturing. Similarly, Hayward and colleagues (2010) propose that total confidence, which is similar to self-efficacy, generates positive emotions that can help entrepreneurs to overcome failure experiences. In contrast, negatively-valenced emotions arising from the failure of an entrepreneurial project can decrease affective commitment, and thereby the effort devoted to an organization or task (Kanter, 1968; Shepherd, 2011). More generally, negative emotions such as fear, sadness, and distress often encourage withdrawal or disengagement (Roseman, 2011). In the present study, affect, including both diffuse moods and specific emotions, are

described in terms of both subjective pleasantness or unpleasantness, as well as activation, and can either be situation-specific (state-induced affect) or more stable in nature (dispositional affect) (Baron, 2008; Cardon, Foo, Shepherd, & Wiklund, 2012; Feldman Barrett et al., 2007; Feldman Barrett & Russell, 1998; Foo et al., 2015).

In spite of this predominant focus on the beneficial motivational impact of positive emotions, other research in the stream of entrepreneurial emotions has begun to offer hints that negative emotions can, if not motivate entrepreneurs, at least activate some cognitive processes. For instance, research on the cognitive and emotional implications for opportunity exploitation have offered several interesting insights. First, one study noted that, in the context of opportunity evaluation, entrepreneurs can experience both positive and negative emotions simultaneously. Second, this research revealed that a high-activation negative emotion, like anger, can have a directionally similar, positive impact on the exploitation decision as does a high-activation positive emotion like joy (Welpe, Spörrle, Grichnik, Michl, & Audretsch, 2012). In a separate study, researchers found that although positive emotions increased the amount of effort that entrepreneurs intended to devote to tasks required in the future, negative emotion actually motivated effort on tasks that were imminently required. They reasoned that this was so because negative emotion signals to the entrepreneur that something is awry, and thus activate their attention to deal with present issues (Foo et al., 2009). Lastly, and most recently, qualitative inquiry into entrepreneurs' recovery from the failure of their business has shown the possibility for negative and positive emotions to work in tandem. Using in-depth interviews, one research team recognized that entrepreneurs were spurred to make sense of their business's failure through the experience of negative emotions, but

that positive emotions, in line with Fredrickson's broaden-and-build theory (1998, 2001), were required to provide the cognitive resources to actually process the experience (Byrne & Shepherd, 2015).

This existing literature provides some indication that positive and negative emotions each have an important influence on entrepreneurial cognition. However, the question still remains as to how negative and positive affect simultaneously impact motivation to pursue a given goal following adversity such as negative feedback. It is salient to note that this question differs from that of how entrepreneurs move on from the ultimate failure of their business. While the closing of a business essentially eliminates any potential goals related to that business, entrepreneurs who experience an individual instance of negative feedback on their venturing goals live to fight another day. These entrepreneurs have the option to continue pursuing the goals set for their venture, though perhaps with altered motivation and through different means. It is their motivation to navigate this type of adversity that ultimately impacts their progress and success (Renko et al., 2012).

Approaching the research question requires the recognition that individuals, and especially entrepreneurs, are likely to experience more than one emotion at a time (Podoyntsyna et al., 2012). While people have a dispositional or more stable affective state that may be positive or negative and high- or low-activation, this can work in tandem with situationally- or state-induced affective experiences, which may also be positive or negative and high- or low-activation (Baron, 2008; Foo et al., 2015). Given that the research question posed assumes the experience of an adverse event such as negative feedback or failure to attain a goal, I start by drawing on existing theory to offer

hypotheses about the impact of state-induced emotions felt by entrepreneurs.

Subsequently, I consider more stable, dispositional affect, and its impact on motivation.

HYPOTHESIS DEVELOPMENT

Entrepreneurs set both general and specific goals related to establishing their new venture (Baron et al., 2016; Cardon & Kirk, 2015; Carter, Gartner, & Reynolds, 1996; Laguna et al., 2016), and their motivation to achieve these goals is reflected in the direction, intensity and persistence of the effort allocated to related tasks (Campbell & Pritchard, 1976; Kanfer, 1990; Pritchard & Payne, 2003; Seo et al., 2010, 2004).

Entrepreneurs will often make gains, receiving positive feedback on their progress toward the goal. However, they will also inevitably face adversity in the form of negative feedback, either about the progress toward the goal or failure to attain a goal (Brockner et al., 2004). The state-induced affective response to negative feedback is typically negative in valence (Brockner & Higgins, 2001; Shepherd et al., 2014; Weiner, 1985).

Nonetheless, there are differences in how these negative emotions are experienced, and thereby the way that they affect how the individual moves forward from negative feedback regarding their progress toward venture-related goals. Regulatory focus theory, which seeks to explain how individuals self-regulate in an attempt to pursue their goals, holds that individuals experience negative feedback and its related affective response differently (Higgins, 1997, 1998). This difference is based primarily upon the regulatory focus adopted by an individual, which can be a product of either the personal characteristics of the individual, or induced by the framing of the situation as either an opportunity to avoid a loss, or an opportunity to secure a gain (Higgins & Cornwell, 2016). Individuals operating under a promotion focus emphasize the need for growth and

development, they seek to achieve goals associated with their ideal self, and are sensitive to the presence or absence of positive outcomes. Individuals operating under a prevention focus, however, concentrate on their need for security and safety, they undertake goals that they feel are obligations or responsibilities, and are more attuned to the presence or absence of negative outcomes (Brockner & Higgins, 2001; Higgins, 1997, 1998).

The regulatory focus adopted influences the type and degree of emotional response to negative feedback or failure. Promotion-focused individuals approach goals with a sense of eagerness, and a hope of attaining positive outcomes (Higgins & Cornwell, 2016). Failure, therefore, elicits a sense of sadness, dejection, or disappointment, which is low in intensity, and decreases the eagerness of the individual (Brockner & Higgins, 2001; Idson & Higgins, 2000). Eagerness is decreased in this case because this strategy is ideal for considering all possibilities, not for ensuring care and avoidance of mistakes, as is indicated by negative feedback (Brockner & Higgins, 2001; Higgins & Cornwell, 2016). Prevention-focused individuals, alternatively, approach goals with a sense of vigilance, and the aim of avoiding negative outcomes (Higgins & Cornwell, 2016). Therefore, failure elicits higher-activation negative emotions, and increases vigilance, as this strategy is ideal for avoiding future failures and negative feedback (Brockner & Higgins, 2001; Idson & Higgins, 2000). Consequently, while failure and negative feedback serve to de-motivate promotion-focused individuals through low-activation negative emotions such as disappointment, it has been shown to increase the motivation of prevention-focused individuals through high-activation negative emotions such as agitation (Brockner & Higgins, 2001; Van-Dijk & Kluger,

2004, 2010). However, there may be reason to believe that the regulatory focus of the individual under conditions of negative feedback could have a different impact on the three behavioral components of motivation. These differences are explored below.

Situational Affective Impact of Negative Feedback on Motivation

The direction of one's efforts in pursuit of a goal is one of the key behavioral outcomes of motivation. Direction, in this context, has been defined as a choice between substantially different actions (Kanfer, 1990). In recent work on motivation, it has also been defined as a choice between various behavioral orientations (Seo et al., 2004). In this study, however, 'direction' is taken to indicate the general strategy that an entrepreneur uses to pursue their goal. It reflects the types of tactics through which an entrepreneur channels motivation into goal pursuit.

Following a failed or non-efficacious attempt at goal pursuit, it may be necessary to learn from the ensuing negative feedback, and reevaluate the direction of effort to ensure that the chosen means will result in the desired ends (Shepherd, 2003). This could require considering alternative courses of actions, new strategies, and creative tactics. In other words, following negative feedback about their goal pursuit activities, entrepreneurs have the option either to maintain a stable direction of effort, or to modify the direction of their goal pursuit efforts. It is in this area that promotion-focused entrepreneurs may have an advantage over prevention-focused entrepreneurs.

Following the receipt of negative feedback, individuals operating under a promotion focus are more likely to feel low-activation negative emotions, like dejection, while those operating under a prevention focus are more likely to feel high-activation negative emotions, like anxiousness (Brockner & Higgins, 2001). Negative emotions, in

turn, are purported to narrow attention, and limit the variety of actions that an individual considers. This also has a negative impact on the ability to be cognitively creative and flexible (Fredrickson, 2001; Fredrickson, Mancuso, Branigan, & Tugade, 2000; Shepherd, 2015). Therefore, it is expected that those operating under a prevention focus are more likely to experience these cognitive limitations following negative feedback regarding their pursuit of venture-related goals, because of their propensity to experience the ensuing negative emotions more intensely.

These patterns of cognition have also been reflected in regulatory focus research, which has shown that individuals operating under a promotion focus are more creative (Brockner et al., 2004; Friedman & Forster, 2001), generate more alternatives (Brockner et al., 2004; Crowe & Higgins, 1997), and identify more innovative ideas (Tumasjan & Braun, 2012). Further, research has shown that individuals operating under a promotion focus are more willing to consider change (Brockner et al., 2004; Liberman, Idson, Camacho, & Higgins, 1999). In sum, there appears to be strong evidence to suggest that individuals operating under a prevention focus are less likely than those operating under a promotion focus to consider a change in their actions, or the direction of those actions.

Therefore:

Hypothesis 1: Following the receipt of negative feedback, a prevention focus (as opposed to a promotion focus) is negatively related to a change in the direction of effort.

The intensity of effort, as an indicator of motivation, is the degree or amplitude of effort that an entrepreneur dedicates to achieving their goal (Campbell & Pritchard, 1976; Kanfer, 1990; Seo et al., 2004). The activation of negative emotions following negative

feedback may also impact the intensity of effort that an entrepreneur subsequently dedicates to achieving their goal, based on their regulatory focus. Once again, individuals operating under a prevention focus experience more intense negative emotions following a failure (Brockner & Higgins, 2001). This high activation of negative emotions is theorized to energize those under a prevention focus, as they are striving toward goals they feel are obligations, or ‘musts’. This is in contrast to those operating under a promotion focus – when receiving negative feedback, they are purported to experience low-activation negative emotions, which are de-energizing (Brockner et al., 2004). In this circumstance, although the valence of the experienced emotion is similar (i.e., negative), it is the level of activation that makes a behavioral difference.

These theoretical insights gleaned from regulatory focus theory are reflected in several other empirical studies. In an experimental study, researchers found that participants increased the speed with which they worked on a task following negative feedback only if they were operating under a prevention focus (Higgins, Bond, Klein, & Strauman, 1986). Another experimental study similarly found that respondents’ intention to invest effort in their job was higher after receiving negative feedback for those operating under a prevention focus (Van-Dijk & Kluger, 2004). Research that has examined similar phenomena, although through different theoretical lenses, has obtained similar results. For instance, Seo and colleagues (2010, 2004) theorized and found that the activation of an emotion, regardless of valence, increased effort intensity in the context of work-related tasks. Furthermore, this is consistent with findings that even negative emotions activate cognition, and effort on venturing tasks that are immediately

required (Byrne & Shepherd, 2015; Foo et al., 2009). In other words, high-activation negative emotions have the potential to spur individuals to more intense action. Given that, following negative feedback, entrepreneurs operating under a prevention focus, as opposed to a promotion focus, are theorized to experience more intense or activated negative emotions, one would also expect that:

Hypothesis 2: Following the receipt of negative feedback, a prevention focus (as opposed to a promotion focus) is positively related to intensity of effort.

The final behavioral component of motivation is that of persistence of effort (Kanfer, 1990). This construct has been defined and operationalized in different ways. For instance, in entrepreneurship research, persistence has been studied as the choice to continue working on one's business, in lieu of pursuing other options (Holland & Garrett, 2015), and in management research, persistence has been considered the choice to continue with a chosen strategy or course of action (Seo et al., 2010). However, these conceptualizations potentially combine two of the components of motivation: direction of action and duration of action. Therefore, in the present study, persistence it is defined as the duration of effort that an entrepreneur devotes to achieving his or her goals (Seo et al., 2004). Although persistence and intensity of effort may bear some similarities in practice, they are theoretically distinct. Intensity represents the amount of effort devoted in a given time frame, while persistence represents the time frame over which effort is devoted to goal pursuit.

Individuals working toward goals under a prevention focus do so with a strategy of vigilance. When they receive negative feedback, the high activation negative emotions that they experience reinforce the salience of avoiding negative outcomes, and the idea

that there is ‘everything to lose’ (Idson & Higgins, 2000). Given that the goal is framed as a requirement or obligation under a prevention focus, the individual must do whatever is necessary to attain that goal, even if they’ve failed previously (Higgins, 1997).

Despite this baseline argument, the existing literature provides some conflicting indications as to the influence of regulatory focus on constructs similar to persistence. In one study, promotion and prevention focus were situationally induced by the researchers, by priming the participants to strive to ‘do well’ (i.e., promotion focus) or ‘not do poorly’ (i.e., prevention focus). Among other tasks, participants were given the challenge of finding a hidden figure in an embedded-figures task. In this situation, those in the prevention-focused group quit the task sooner than did those in the promotion-focused group after facing difficulty (Crowe & Higgins, 1997).

However, there is a countervailing argument to be made. Regulatory focus theory adds an interesting dimension to value-expectancy theory (Vroom, 1964) in this respect. Although motivation is thought to be a multiplicative function of the value of a goal and the expectancy of attaining it, this does not always hold for individuals operating under a prevention focus. In these cases, and because the goal is framed as a necessity, the expectancy of attaining that goal matters less to those operating under a prevention focus (Higgins, 1997; Shah & Higgins, 1997). Based on this logic, the following argument is offered: when an entrepreneur experiences negative feedback, the expectancy of subsequently achieving that goal should be diminished. However, so long as the value of the goal is high, prevention-focused individuals should place less importance upon the expectancy of attaining the goal and do whatever is necessary to reach the desired end. Conversely, individuals operating under a promotion focus should still consider both the

value of the goal and the decreased expectancy of attaining it. Because expectancy remains an important part of the goal evaluation for promotion-focused individuals, negative feedback should decrease their motivation and persistence. Therefore:

Hypothesis 3: Following the receipt of negative feedback, a prevention focus (as opposed to a promotion focus) is positively related to persistence in effort.

The Moderating Impact of Dispositional Affect

In addition to the emotions that arise from a situation, such as the receipt of negative feedback, entrepreneurs also exhibit a dispositional or trait-like affect that is stable across time (Baron, 2008). This dispositional affect tends to remain relatively constant and represents an emotional or affective reference point for a person (Baron et al., 2012). Given its relative permanence, it is probable that dispositional affect influences how an entrepreneur feels following the receipt of negative feedback. Furthermore, the fact that positive and negative emotions can occur simultaneously (e.g., Podoyntsyna et al., 2012; Welpe et al., 2012) indicates that these two spectrums are distinct dimensions (Watson, Clark, & Tellegen, 1988) and that each deserve specific attention. Therefore, below I first address the moderating impact of dispositional negative affect before turning to the moderating effect of dispositional positive affect.

The presence of high dispositional negative affect implies frequent experience of negative emotions varying in activation (Diener et al., 2010). There may be reason to believe that there is an interactive effect between trait-like negative affect and state-like negative affect. Systems of emotions tend to be self-perpetuating (Garland et al., 2010). Specifically, individuals tend to focus on aspects of a given situation that are in line with their current feelings (Bower, 1981). For individuals experiencing (relatively) high

dispositional negative affect, this principle indicates that their attention would be restricted and focused on the damage or loss arising from a situation (Garland et al., 2010). In the case of negative feedback, an entrepreneur high in negative dispositional affect might pay particular heed to the failed attempt, and focus on the negative emotions arising from that situation. This focus on the negative situation and emotions, in turn, colors the perceived qualities of the situation, and amplifies the intensity and negativity of the experience (Garland et al., 2010; Miron, Duncan, & Bushnell, 1989).

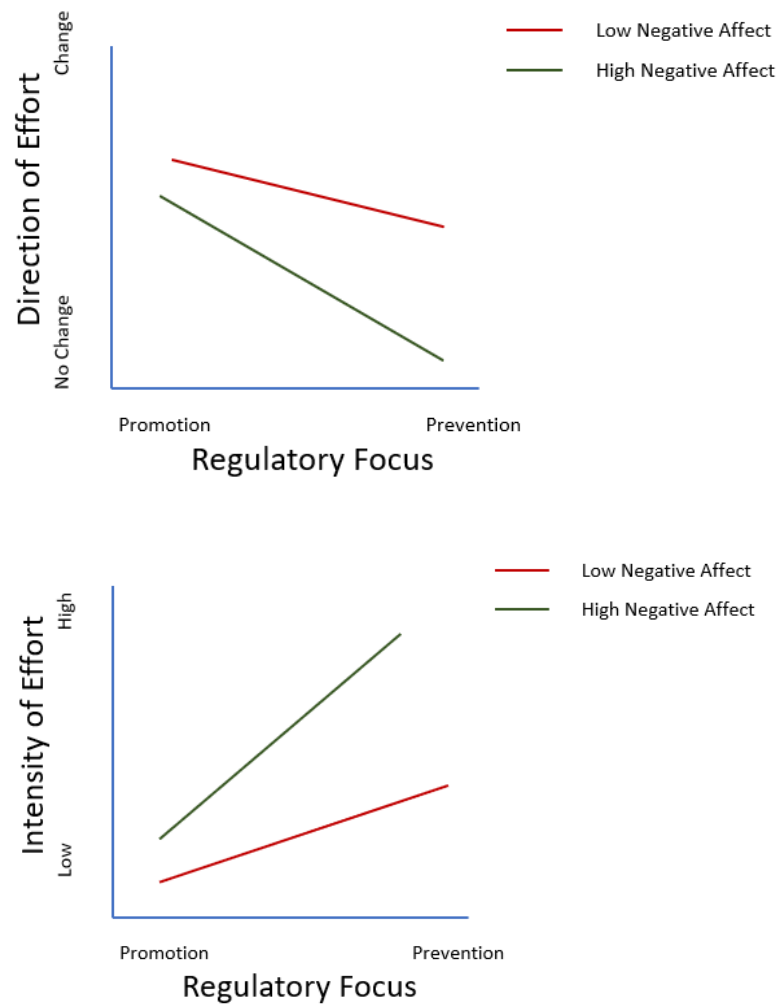
In sum, individuals with a baseline of high negative affect will likely focus more on the adversity embodied in negative feedback, which, in turn, amplifies the experience of the negative emotions arising from negative feedback and, thereby, the effects of those negative emotions. Those individuals operating under a prevention focus should be particularly impacted by this amplification of negative emotions, because their emotional response to negative feedback is purported to be significantly more intense to begin with. For those operating under a prevention focus, then, amplified negative emotions should further narrow the array of actions or direction of effort considered (Fredrickson, 2001; Shepherd et al., 2014). Additionally, the magnification of negative emotions stemming from negative feedback should also energize and increase the intensity of effort devoted to goal pursuit for those operating under a prevention focus (Brockner et al., 2004). Finally, enhanced negative emotions stemming from negative feedback should also increase the salience of avoiding negative outcomes for individuals under a prevention focus, thereby increasing persistence in effort (Higgins, 1997; Idson & Higgins, 2000). Therefore:

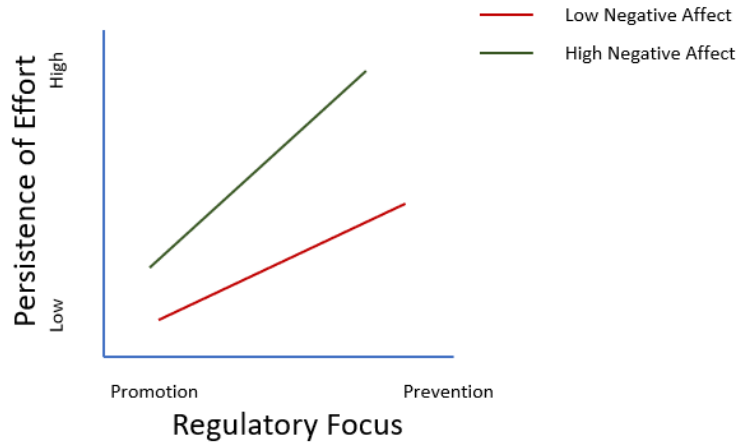
Hypothesis 4: Dispositional negative affect positively moderates (strengthens) the relationship between prevention focus and (a) direction of effort (b) intensity of effort, and (c) persistence in effort.

The relationships proposed in Hypothesis 4 are depicted in Figure 1 below.

FIGURE 1

Interaction Between Dispositional Negative Affect and Regulatory Focus





Positive emotions, in general, have a number of benefits. For instance, because they evoke general, rather than specific action tendencies, the variety of behaviors that an individual contemplates is considerably more diverse when they experience positive emotions (Fredrickson, 1998, 2001). However, positive emotions associated with a high level of dispositional positive affect may also have an impact on the negative emotions arising from negative feedback. The broaden-and-build theory of positive emotions actually asserts that positive emotions interrupt or undo residual negative emotions (Fredrickson, 1998; Fredrickson et al., 2000). In an experimental test of this idea, researchers exposed participants to a film that elicited negative emotions. Following that film, a second film was shown to different groups of participants that elicited either positive, negative, or no emotional response. The individuals that viewed the second videos that stimulated positive emotions returned to their baseline state of cardiovascular activity significantly faster than did those in the neutral or negative conditions (Fredrickson & Levenson, 1998).

If positive emotions can ‘undo’ negative emotions, then it is possible that a tendency to experience positive emotions, embodied in dispositional positive affect,

could undo the effects of negative emotions arising from a negative feedback. Also, given that those in a promotion focus are purported to feel only a low-level activation of negative emotions following a failure, it is likely that this deactivation of negative emotions will be less evident for those promotion-focused entrepreneurs. In comparison, those in a prevention focus who experience highly activated negative emotions from a failure, may have the most to gain from this ‘undoing’. For example, a five percent reduction in the felt intensity of negative emotions will have a greater absolute impact on those who begin with a high, rather than a low level, of negative affect.

This means that, particularly for prevention focused entrepreneurs, dispositional positive affect should first reduce the narrowing of an individual’s attention and thought-action repertoires, which are by-products of negative emotions (Fredrickson, 1998, 2001). Dispositional positive affect should also decrease the activation of negative emotions arising from negative feedback, which should thereby reduce the intensity of effort put forward. Finally, dispositional positive affect, in reducing the intensity of negative emotions felt, should also diminish the felt salience of avoiding negative outcomes, thereby decreasing entrepreneurs’ persistence. In sum:

Hypothesis 5: Dispositional positive affect negatively moderates (weakens) the relationship between prevention focus and (a) direction of effort (b) intensity of effort, and (c) persistence in effort.

The relationships proposed in Hypothesis 5 are depicted in Figure 2 below. The overall research model is depicted in Figure 3.

FIGURE 2

Interaction Between Dispositional Positive Affect and Regulatory Focus

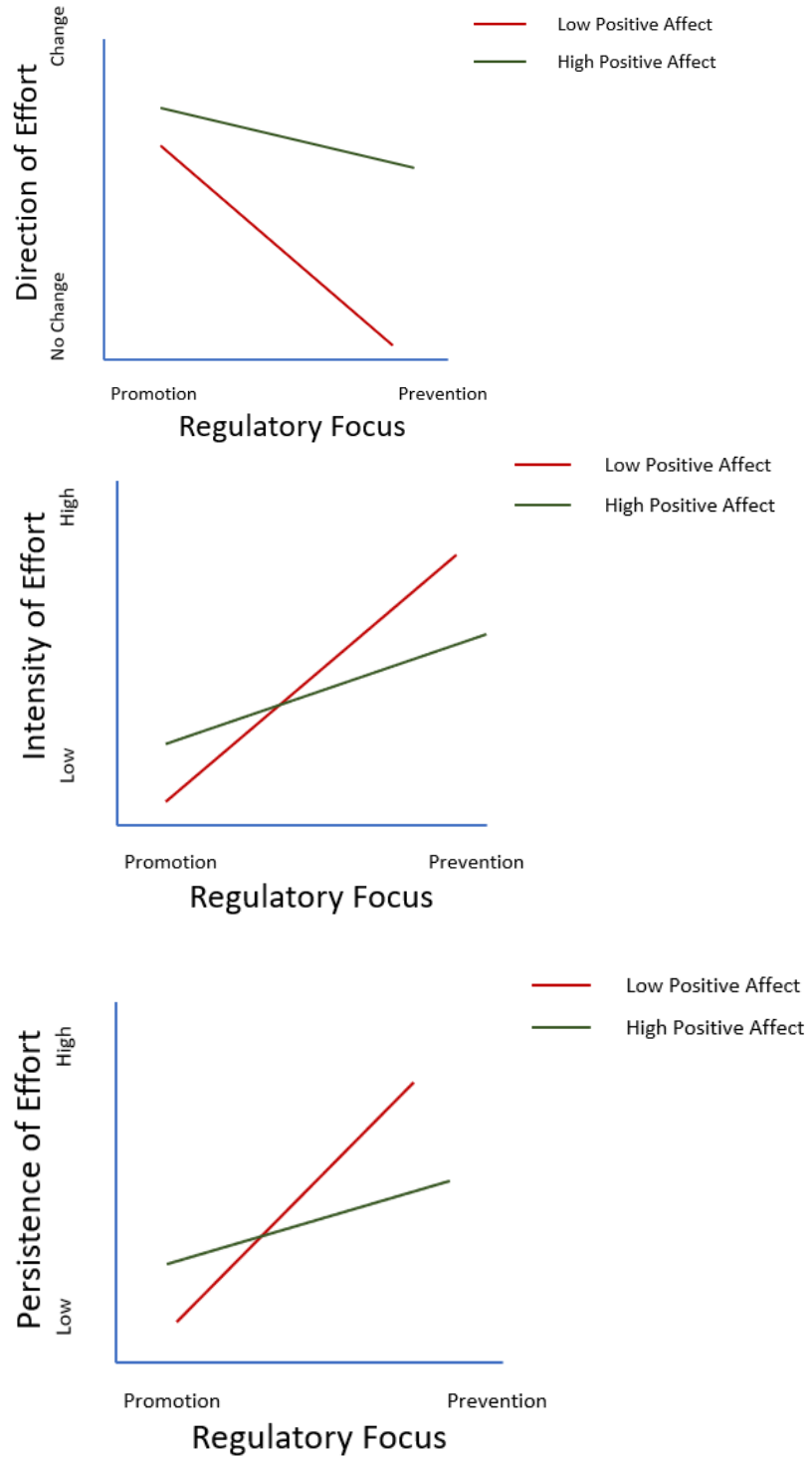
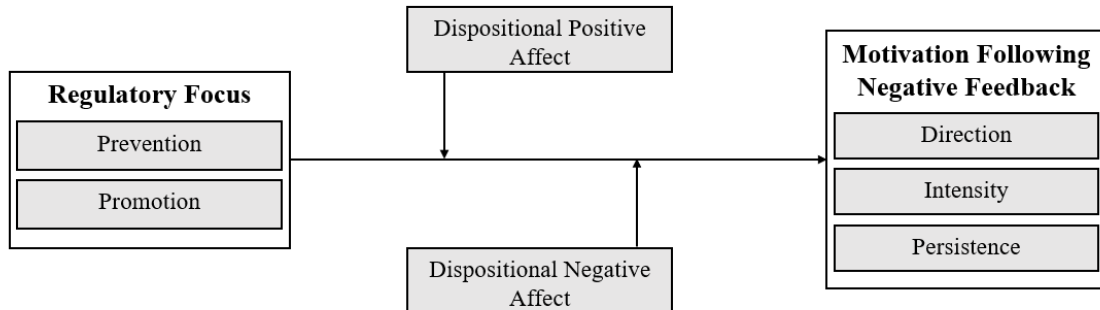


FIGURE 3

Research Model



METHODS

This study examines the motivational response to negative feedback based on situational characteristics (regulatory focus) and personal characteristics (dispositional affect). Although situational characteristics can be experimentally manipulated, it is not reasonable to manipulate personal characteristics. Therefore, this study utilized a quasi-experimental methodology to test the proposed hypotheses by manipulating participants' regulatory focus, but measuring dispositional affect as it is.

Participants were randomly assigned to one of two groups, which were designed to evoke either a prevention focus or a promotion focus. Then, participants were assigned a task familiar to most entrepreneurs – preparing a pitch. Regardless of their performance on this task, they received negative feedback, and were then presented with the opportunity to try the task again. Their responses to this second opportunity were captured in order to measure their motivation. Inducing a controlled 'negative feedback' situation has the benefit of providing a standard experience to all participants in a minimally harmful and non-invasive way. It also allowed me to capture motivational

responses in real-time, which has the benefit of eliminating some of the issues associated with recall bias. The methodology is described in more detail below.

Participants

The population of potential participants was defined as undergraduate students enrolled in an entrepreneurship course at a U.S. secondary educational institution. After securing IRB approval (study #21.0058), I worked with faculty at eight universities across the U.S. to recruit students meeting the inclusion criteria. In total, I collected complete data from 97 students. However, 12 respondents failed an attention check in the study, leaving a final sample of 85 student respondents. In this final sample, participants were 50.6% male and 49.4% female. Respondents' ages ranged from 18 to 42 with a mean of 22.90. The number of times that respondents had developed a pitch in the past ranged from 0 to 20 times, with an average of 2.95 times.

Procedure

Participants were initially emailed a link to the study hosted on the Qualtrics website. In the recruiting email, they were informed that they had the opportunity to take part in a study in which the researchers were examining motivation, adversity, cognition, and emotion in entrepreneurship. The participants were notified that, for completing the study, they would receive a \$15 Amazon gift card. They were also told that, as part of the study, they would have the chance to develop a written venture pitch for an opportunity to win \$500.

At the outset of the study, participants completed the Scale of Positive and Negative Experience (Diener et al., 2010), to provide a measure of baseline affect. Capturing this first prevented any confounding impact of the subsequent manipulation in

the experiment. Participants also completed the Regulatory Focus Questionnaire (Higgins et al., 2001), which was used to control for their baseline predominant regulatory focus. Several additional controls measures, including the number of times the respondent had previously developed a venture pitch, were captured at the outset as well.

Next the participants were told that they would have the opportunity to participate in a written venture pitch competition. In this competition, they had the chance to type and submit two elevator pitches for a business idea that they had been considering, or had acted on previously. They were instructed to consider the written pitch as similar to one that would be posted on a crowdfunding campaign website, like Kickstarter. They were given some general information on features typically included in successful crowdfunding pitches (c.f., Parhankangas & Renko, 2017). Specifically, they were told that pitches that meet their funding goal typically include the following features:

1. Introduction of the founder(s).
2. Specific description of the project, including features and details about the product or service.
3. Information about the market for the product.
4. Information about how much funding is needed, and what it will be used for.
5. Around 200 words in length.
6. Use of concrete, precise language. Successful pitches use short, clear sentences.
7. Use of interactive language that helps potential investors to identify with the project.

Participants were then told that they would submit their initial pitch and would receive a rating from 1 to 10 with 1 being poor and 10 being excellent, based on an

algorithm that has been developed to determine the effectiveness of the pitch. Then, they would have the chance to modify their pitch for the final submission. The participants in the first experimental group, the prevention focus group, were told that as long as they scored a 7 or above on the final pitch, they *would not lose* the opportunity to advance to the finals, and to be considered for the \$500 prize. However, if they scored 6 or lower, they would lose the opportunity. Their goal was to avoid scoring less than a 7 on their second pitch. Those in the second experimental group, the promotion focus group, were told that if they scored a 7 or above, they *would gain* the opportunity to advance to the finals for a chance to win the \$500 prize. Their goal was to score a 7 or higher on the second pitch.

The participants were then given the opportunity to write and submit their initial pitch. The Qualtrics survey was programmed to only allow respondents to advance to the next page if the pitch was at least 200 characters in length. Once they submitted the pitch, they were told that their pitch was being analyzed. In the interim, data was collected on several control measures such as age, gender, and their anticipated pitch score.

After completing these measures, every participant, regardless of their experimental group, received feedback containing a rating of a 3 out of 10 on their initial pitch. This was intended to evoke the perception of negative feedback regarding their pitch, as the goal for both groups was to score seven or higher. At this point, participants had to successfully complete an attention check in which they were asked to indicate whether the score received met, or did not meet the goal set for them at the outset of the study. Only the data for those who responded that the score did not meet the goal were

included in the study. Additionally, participants were again asked to complete the Scale of Positive and Negative Experience, but as it pertained to how they were currently feeling.

Next, participants were given the chance to develop their pitch a second time. Although they could change the pitch in any way they would like, they were told that the pitch needed to be for the same business idea. Upon submitting the second pitch, participants were asked to provide information on the degree to which they altered their second pitch (direction of effort), and how hard they worked on the second pitch (intensity of effort). Additionally, the Qualtrics software captured the amount of time that the individual spent on the first and second pitch screens, which was used in calculating the persistence of effort.

At the end of the study, the participants were debriefed, and told that everyone received a score of three on their initial pitch, regardless of what they wrote. Also, they were told that each participant, regardless of their performance, has been entered into a drawing for \$500. Finally, participants were given the option to contact the research team to receive real feedback on their pitch if they so desired. I took these steps to ameliorate any negative feelings stemming from the initial negative pitch feedback.

Measures

Positive and negative affect. Respondents completed the Scale of Positive and Negative Experience developed by Diener and Biswas-Diener (2010). This short questionnaire asks respondents to rate how often (1=very rarely or never, 5=very often or always) they generally experience six positive feelings and six negative feelings. The positive and negative feeling scales were separated, and the responses summed to obtain

a score on each scale from 6 to 30, with 6 representing the lowest positive or negative affect possible, and 30 representing the highest positive or negative affect possible. This scale was selected because it captures a wide range of both valence and activation of emotions and has been advocated in previous entrepreneurship research (Foo et al., 2015).

Regulatory focus. Past research on regulatory focus theory has utilized a variety of methods to either measure chronic regulatory focus, or to induce a particular regulatory focus in the moment. Entrepreneurship scholars have theorized that entrepreneurs should generally be predisposed to pursue goals through a promotion focus (Corbett & Hmieleski, 2007; McMullen & Shepherd, 2002; Uy et al., 2015). However, scholars have also acknowledged that both prevention and promotion focus are beneficial in different tasks required of entrepreneurs, and to ensure their ultimate success (Brockner et al., 2004). In order to avoid the confounding effects of any preexisting disposition, I opted to follow the acknowledged method of situationally inducing a prevention or promotion focus by framing the situation, in this case, goal pursuit, in terms of a loss/ non-loss or gain/ non-gain (e.g., Crowe & Higgins, 1997; Forster, Grant, Idson, & Higgins, 2001; Shah, Higgins, & Friedman, 1998). Respondents were randomly assigned to one of two conditions. Roughly half (49.4%) of the respondents were randomly assigned to the first experimental condition, which was intended to induce a promotion focus. These respondents received instructions that they must perform at or above a certain level to gain entry into the finals, for a chance to win \$500. The other half (50.6%) of the participants were randomly assigned to the second experimental condition, which was intended to induce a prevention focus. These individuals received

instructions that they must perform at a certain level to avoid losing their chance to win the \$500. This framing was intended to evoke a desire to avoid a loss or negative outcome in those assigned to the prevention focus, and to evoke a desire to achieve a gain or positive outcome in those assigned to the promotion focus.

Based on the results of the pilot study, I also strengthened the manipulation in the final study by adding a reflection question intended to induce a promotion or prevention focus. Those in the prevention focus group were asked to write about something that they were required to do, an obligation. Those in the promotion focus group were asked to write about something they would ideally like to do, a hope or aspiration. These questions have been used to induce regulatory focus in past studies (e.g., Freitas & Higgins, 2002).

Direction of effort. In this study, a change in the direction of effort was considered to be reflected in a change in strategy used to pursue one's goal. To the author's knowledge, no existing study in entrepreneurship has attempted to measure a change in the direction of effort in this particular manner. Therefore, to capture the change in the respondents' strategy, I asked six questions regarding the extent to which the respondent had altered different aspects of their pitch. These aspects were identified and noted as important to developing a successful pitch in the instructions that the respondents' received. Hence, to capture the degree of change in strategy that the participants took in developing their second pitch, participants were asked "To what extent did you change the language in your pitch introducing yourself as a founder?", "To what extent did you change the language in your pitch regarding the features and details of your product or service?", "To what extent did you change the language in your pitch

regarding the market for your product or service?”, “To what extent did you change the language in your pitch regarding the required funding”, “To what extent did you change your pitch to make the language more precise?”, and “To what extent did you change your pitch to make the language more interactive and engaging?”. Responses were captured on a scale of 1 to 10 with 1 being “no change at all” and 10 being “changed entirely”, and were summed. The items were summed instead of averaged because they are formative of the construct of a change in direction of effort, and conceptually vary independent of one another (e.g., a respondent could change the description of the product or service without changing language on the required funding).

Intensity of effort. Although past attempts at measuring entrepreneurs’ effort have used single-item measures these studies also required participants to respond to the related question multiple times over the course of the study, and thus brevity was necessary to reduce participant fatigue (e.g., Foo et al., 2009). Given that respondents in this study were only asked to provide ratings of effort at one point, I opted to follow other studies on work effort (e.g., Bielby & Bielby, 1988) and developed a three-item measure of work effort, or more specifically, intensity of effort. Intensity of effort was captured by asking participants “How hard did you work on developing this second pitch?”, “How much thought did you give to developing this second pitch?”, and “What level of effort intensity did you devote to developing this second pitch?”. Responses for each question were captured on a scale from 1 to 10. These measures were considered to be reflective of the construct of effort intensity, as they were expected to covary. Therefore, the final measure of effort intensity was the average of the response to these three questions. The three measures had a Cronbach’s Alpha score of 0.962.

Persistence of effort. Past efforts at measuring persistence in goal-directed behaviors have used the time spent on a task as an indicator of persistence (e.g., Brandstätter & Frank, 2002). The Qualtrics survey software captured the amount of time that the participant spent on the page developing both their initial and second pitch after receiving negative feedback. Using just the amount of time spent on the second pitch as a measure of persistence would be problematic, because each individual may be predisposed to spend more or less time developing their pitch for reasons outside of their regulatory focus (e.g., how valuable the \$500 grand prize was). I determined that it would be more appropriate to scale the amount of time spent developing the second pitch to each individual. Therefore, I used the time data captured by Qualtrics to calculate the percent change in time spent revising the second pitch, compared to that spent developing the first pitch. This provided an indication of whether the individual spent relatively more or less time working on their pitch after they received the negative feedback.

Controls. Several control measures were collected including respondent's age, gender, and the number of times they previously developed a written or spoken pitch. I also introduced a control for the respondent's baseline predominant regulatory focus. To capture this, I asked respondents to complete Higgins et al.'s (2001) Regulatory Focus Questionnaire, and calculated the respondent's predominant orientation (positive values represent a predominant promotion focus and negative values represent a predominant prevention focus). Based on their impact on motivation and persistence in previous studies, a measure of entrepreneurial self-efficacy (e.g., Hechavarria et al., 2012) and entrepreneurial passion (e.g., Cardon & Kirk, 2015) were included as well. Entrepreneurial self-efficacy was measured using the four item scale developed by Zhao,

Siebert, and Hills (2005) which asks individuals to rate their confidence in performing four different entrepreneurial tasks on a scale from 1 (no confidence) to 5 (complete confidence). Entrepreneurial passion includes intense positive feelings and the centrality of one's identity for the role of inventing, founding, and developing. To capture these constructs, the 13-item measure developed by Cardon et al. (2013), was used, and asks respondents to rate their agreement (1=strongly disagree, 5=strongly agree) with statements about their passion for various entrepreneurial tasks. Based on its propensity to impact the respondent's motivation, I also included a control for the difference between the respondent's anticipated score on their first pitch, and their actual score. To measure this, I asked participants "What do you anticipate your score on the first pitch will be?" immediately after they submitted their first pitch, but before they received their pitch score. The correlations between the variables used in the study are shown in Table 1 below.

TABLE 1
Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Induced Regulatory Focus (1 = promotion, 2 = prevention)													
2. Change in Direction	0.233*												
3. Effort Intensity	0.099	0.834**											
4. Effort Persistence	0.053	0.317**	0.299**										
5. Age	-0.175	-0.022	-0.066	-0.074									
6. Gender (1 = male, 2 = female)	0.059	-0.054	-0.048	0.040	-0.236*								
7. Baseline Positive Affect	0.101	-0.011	-0.063	0.010	0.143	0.054							
8. Baseline Negative Affect	-0.018	-0.008	0.050	0.115	-0.261*	0.197	-0.314**						
9. Number of Previous Pitches	0.036	-0.050	-0.058	-0.012	-0.010	0.156	0.095	0.009					
10. Entrepreneurial Self-Efficacy	-0.027	0.056	0.107	-0.052	0.036	-0.019	0.198	-0.109	0.243*				
11. Entrepreneurial Passion	-0.069	-0.033	0.043	0.100	0.139	-0.094	0.299**	-0.193	0.256*	0.608**			
12. Baseline Regulatory Focus	-0.090	-0.007	0.033	-0.073	0.256*	-0.017	0.086	0.001	0.156	0.084	0.156		
13. Anticipated Score Discrepancy	-0.117	0.036	0.048	0.115	0.016	0.121	-0.267*	0.216*	0.005	-0.226*	-0.192	-0.225*	
Mean	1.490	31.930	5.529	0.873	22.910	1.490	23.450	15.540	2.950	3.544	49.643	0.755	-2.660
Standard Deviation	0.503	12.276	2.264	0.781	5.830	0.503	3.577	3.643	3.943	0.753	0.755	0.926	1.893

n = 85

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

ANALYSIS AND RESULTS

Before proceeding to the primary analyses, it was necessary to ensure that the regulatory focus induction had been successful. As noted in the hypothesis development, it was expected that the prevention-focused group would experience greater negative emotions after receiving negative feedback. Although there were initially no differences between the groups in terms of baseline affect, after receiving the negative feedback on the initial pitch, the prevention-focused group reported feeling significantly more 'negative' ($t(83) = -1.917, p < 0.05$) and 'unpleasant' ($t(83) = -2.076, p < 0.05$) than those in the promotion-focused group. This indicated that the regulatory focus induction was successful in eliciting the anticipated emotional responses from participants.

Testing the relationships hypothesized required running a series of linear regression analyses. The dependent variable in Model 1 was the total change in direction of effort. I initially entered the control variables of age, gender, number of past pitches, discrepancy between expected and actual score, entrepreneurial self-efficacy, baseline predominant regulatory focus, entrepreneurial passion, baseline positive affect, and baseline negative affect as predictors, none of which were statistically significant. In the next step, I added the induced regulatory focus variable as a predictor. The coefficient was positive and statistically significant ($B = 6.221, p < 0.05$), which was the opposite of what was indicated in Hypothesis 1. Next, I added the interaction terms between induced regulatory focus and baseline negative affect ($B = 0.651, p > 0.05$), and between induced regulatory focus and baseline positive affect ($B = 0.789, p > 0.05$). The coefficients for these predictors were not statistically significant, which indicated a lack of support for

Hypotheses 4a and 5a. The results of these analyses are reported in Model 1 of Table 2 below.

I modeled average effort intensity as the dependent variable in Model 2. First, I entered each of the control variables as predictors, none of which were statistically significant. Next, I added the induced regulatory focus variable, which was also not statistically significant ($B = 0.565, p > 0.05$). This indicated a lack of support for Hypothesis 2. Finally, I added the two interaction terms with baseline negative affect ($B = 0.206, p > 0.05$) and baseline positive affect ($B = 0.130, p > 0.05$). These were also non-significant, which indicates that Hypotheses 4b and 5b were not supported. These results are reported in Model 2 below.

Finally, I modeled the percent change in time devoted to the second pitch as the dependent variable in Model 3. For this analysis, I noted one data point that was an outlier, at three standard deviations above the mean. I further examined this case and found that the respondent had spent less than 30 seconds on developing their initial pitch, which was unreasonable. Therefore, I removed this single case. Also, because the variable was a percent change, it was not normally distributed. Therefore, I transformed the variable using a square-root transformation to make the variable amenable to linear regression analysis. In the initial model, none of the control variables were statistically significant. However, I added the induced regulatory focus variable and found that it was a significant predictor of the dependent variable ($B = 0.284, p < 0.01$). This result supported Hypothesis 3. Finally, I added the interaction terms and found that the interaction between regulatory focus and baseline positive affect ($B = 0.018, p > 0.05$) was not significant, indicating a lack of support for Hypothesis 5c. However, the

interaction between regulatory focus and baseline negative affect was significant, ($B = 0.062$, $p < 0.05$), supporting Hypothesis 4c. These results are reported in Model 3 of Table 2 below. The nature of the significant interaction effect is reported in Figure 4 below.

TABLE 2

Tests of Hypotheses

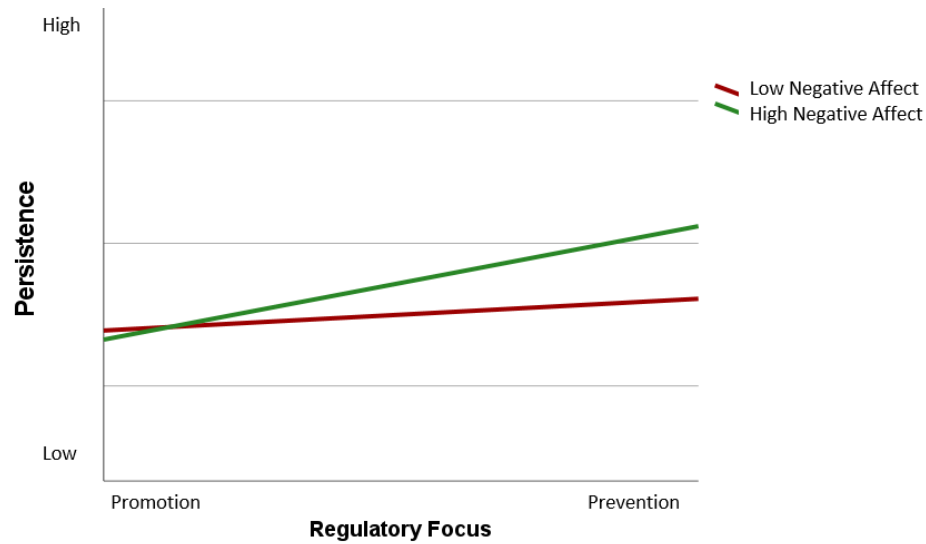
	Model 1 DV: Change in Direction						Model 2 DV: Effort Intensity						Model 3 DV: Effort Persistence					
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Controls																		
Age	-0.099	0.270	-0.015	0.266	-0.046	0.270	-0.039	0.049	-0.031	0.050	-0.041	0.050	0.001	0.009	0.005	0.009	0.002	0.009
Gender	-1.690	3.008	-1.770	2.934	-1.744	2.959	-0.293	0.548	-0.300	0.548	-0.271	0.549	-0.119	0.106	-0.127	0.101	-0.115	0.099
Past Pitches	-0.166	0.382	-0.218	0.373	-0.291	0.399	-0.056	0.070	-0.060	0.070	-0.065	0.074	-0.007	0.013	-0.009	0.013	-0.007	0.013
Expected Score	0.478	0.829	0.681	0.814	0.828	0.832	0.116	0.151	0.135	0.152	0.163	0.154	0.052	0.029	0.061*	0.028	0.067*	0.028
Entrepreneurial Self-Efficacy	2.324	2.395	2.420	2.336	2.645	2.366	0.473	0.437	0.482	0.436	0.516	0.439	0.004	0.085	0.014	0.081	0.019	0.080
Entrepreneurial Passion	-0.089	0.127	-0.068	0.124	-0.059	0.125	0.000	0.023	0.002	0.023	0.004	0.023	0.002	0.005	0.003	0.004	0.003	0.004
Baseline Focus	0.417	1.658	0.689	1.621	0.975	1.661	0.207	0.302	0.232	0.303	0.313	0.308	-0.013	0.058	0.000	0.056	0.024	0.056
Baseline Positive Affect	0.064	0.442	-0.039	0.434	-1.225	1.352	-0.027	0.081	-0.036	0.081	-0.239	0.251	0.001	0.016	-0.004	0.015	-0.034	0.046
Baseline Negative Affect	-0.073	0.432	-0.057	0.421	-1.099	1.375	0.013	0.079	0.014	0.079	-0.312	0.255	0.022	0.015	0.023	0.014	-0.075	0.046
Main Effects																		
Induced Regulatory Focus			6.221*	2.822	-22.298	27.147			0.565	0.527	-5.666	5.041			0.284**	0.098	-1.098	0.911
Interactions																		
Induced Focus X Baseline Pos.					0.789	0.875					0.130	0.163					0.018	0.029
Induced Focus X Baseline Neg.					0.651	0.830					0.206	0.154					0.062*	0.028
	n = 85						n = 85						n = 84					

*Significant at the 0.05 level

**Significant at the 0.01 level

FIGURE 4

Significant Interaction Effect (H4c)



Robustness Check

To test the robustness of the results related to Hypothesis 1, I ran a second series of regression analyses. For these analyses, I determined the word count for the first and second pitches that the respondents developed. I then calculated the percent change in the word count, and took the absolute value of this change, so that both adding and deleting words would represent a degree of change. Next, I used a square-root transformation to normalize the distribution of the variable. I then repeated the analyses in Model 1 above, using the change in word count variable as the dependent variable representing a change in direction. Again, the induced regulatory focus variable was a significant, positive predictor of change in direction ($B = 2.146, p < .01$), which was the opposite of what was predicted in Hypothesis 1. Furthermore, the interaction between regulatory focus and baseline negative affect was significant ($B = 0.461, p < 0.05$), showing that higher negative affect strengthened the relationship between a prevention

focus and a change in direction of effort. The results of this analysis are depicted in Model 4 of Figure 3 below. The significant interaction effect is depicted in Figure 5 below.

TABLE 3
Robustness Check

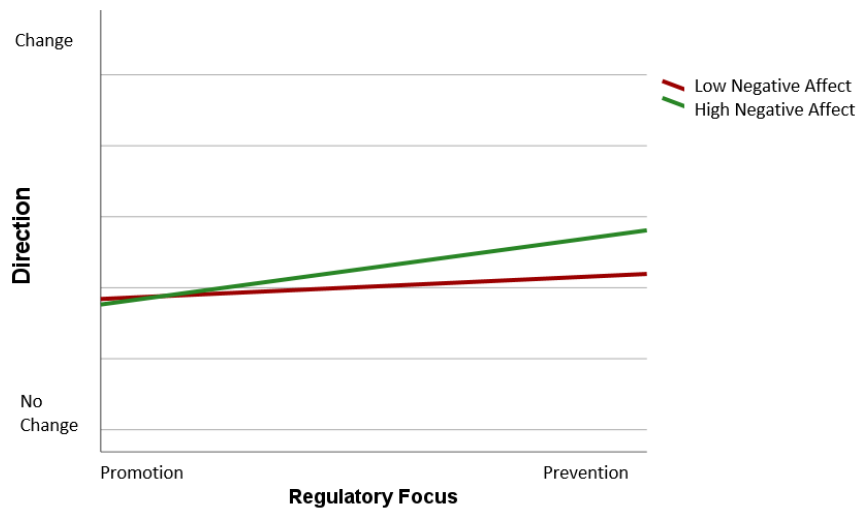
	Model 4					
	DV: Change in Direction (Word Count)					
	B	SE	B	SE	B	SE
Controls						
Age	0.026	0.064	0.055	0.060	0.033	0.059
Gender	-1.121	0.710	-1.148	0.667	-1.090	0.645
Past Pitches	-0.064	0.090	-0.082	0.085	-0.096	0.087
Expected Score	0.555	0.196	0.625	0.185	0.629	0.181
Entrepreneurial Self-Efficacy	0.074	0.566	0.107	0.531	0.191	0.516
Entrepreneurial Passion	0.029	0.030	0.036	0.028	0.040	0.027
Baseline Focus	-0.605	0.392	-0.511	0.368	-0.329	0.362
Baseline Positive Affect	-0.145	0.105	-0.180	0.099	-0.672*	0.295
Baseline Negative Affect	0.095	0.102	0.101	0.096	-0.624*	0.300
Main Effects						
Induced Regulatory Focus			2.146**	0.641	-12.363*	5.920
Interactions						
Induced Focus X Baseline Pos.					0.317	0.191
Induced Focus X Baseline Neg.					0.457*	0.181
n = 85						

*Significant at the 0.05 level

**Significant at the 0.01 level

FIGURE 5

Significant Interaction Effect (Robustness Check)



DISCUSSION

The results of this study offer several interesting implications. First, I noted that prevention-focused individuals reported feeling significantly higher levels of ‘negative’ and ‘unpleasant’ feelings after receiving negative feedback than did promotion-focused individuals. This is consistent with the emotional implications indicated by regulatory focus theory. According to this perspective, prevention-focused individuals approach their goal with a sense of vigilance, in an effort to avoid negative outcomes. Therefore, when a negative outcome occurs, this triggers higher-activation negative emotions, as they have essentially attained the outcome that they were trying to avoid. These negative emotions had interesting implications for the results of the hypothesis tests in the study.

Contrary to what was expected, the results showed that those operating under a prevention focus made *more* significant changes to their strategy or direction of effort after receiving negative feedback. This held for both the respondents’ perceptions of the

degree to which they changed their second pitch, as well as the actual percent change in word count for the second pitch. This result is contrary to what was anticipated. I hypothesized that, consistent with the broaden-and-build theory of positive emotions, negative emotions should actually constrain cognition, and thereby the likelihood that the respondent would take a different approach in their second attempt at achieving the goal. Since the prevention-focused respondents reported higher levels of negative emotion following the negative feedback, one might expect that these individuals would be less likely to change their strategy in goal pursuit. However, the study results are more consistent with the impact of negative emotions predicted by regulatory focus theory. If negative emotions arising from a setback serve to increase the vigilance of prevention-focused individuals, then these individuals should be motivated to do whatever is necessary to achieve the goal, including changing their strategy (Brockner & Higgins, 2001; Idson & Higgins, 2000). So, although positive emotions are thought to drive creative problem-solving (Fredrickson, 2001), it seems that, at least in some instances, negative emotions instigate the search for a solution to a challenge.

The results supporting Hypothesis 3 showed that those participants operating under a prevention focus also seemed to harness the negative emotions arising from negative feedback, and subsequently devoted relatively more time to achieving their goal (i.e., improving the second pitch) than the promotion-focused group. Regulatory focus theory holds that when a prevention-focused individual receives negative feedback about their progress toward a goal, they experience higher activation negative emotions which further reinforce the need to vigilantly avoid negative outcomes. These negative emotions remind the individual that there is ‘everything to lose’, and thus the individual

should persist longer toward their goal (Brockner & Higgins, 2001; Idson & Higgins, 2000). The results of this study support this idea, and illustrate another instance in which negative emotions may be beneficial to motivation.

The lack of support for Hypothesis 2 suggested that regulatory focus had no impact on the level of effort that the respondent devoted to their goal, after receiving negative feedback. There are several possible reasons for this result, including the effect of social desirability on respondents' self-reported level of effort. It may be that, regardless of regulatory focus, respondents felt compelled to report that they devoted considerable effort to developing their second pitch, in order to give a favorable impression of their work ethic. The objective measure of time spent on the pitch may indeed be a more realistic indication of the level of effort devoted to the task.

There was very little evidence to support the hypotheses regarding the interaction between the respondents' baseline affective state and the induced regulatory focus. Only the interaction between baseline negative affect and regulatory focus was a significant predictor of persistence, in the primary analyses. Furthermore, the direct effect of baseline positive and negative affect did not have a significant impact on the three components of motivation in the primary analyses. One explanation for this may be that the situationally induced emotions related to negative feedback in goal pursuit outweighed the impact of baseline affect. Baron and colleagues (2012) note that dispositional affect serves as a baseline *in the absence of* state-induced affect. Therefore, given the negative feedback presented in this study, it seems likely that the situationally induced affect overshadowed the impact of baseline affect in the study.

Relatedly, the moderating hypotheses suggested that positive emotions should work in tandem with negative emotions to fuel motivation. Indeed, past research has shown that positive and negative emotions facilitate cognitive processes in tandem (Byrne & Shepherd, 2015). Yet, there was not strong evidence to suggest that baseline positive affect had a direct or moderated effect on motivation in this study; only situationally induced negative emotions had a substantial motivational impact. One possible reason that positive emotions did not make a material difference in this study could be related to the time period that the study covered. The goal-related effort of developing a quality venture pitch only lasted around 30 minutes in this study. If, after receiving negative feedback, individuals initially experience negative emotions, there may not have been sufficient time in the study for respondents to return to their baseline affective state, and therefore for positive affect to have any impact on motivation. Indeed, Byrne and Shepherd (2015) noted the benefit of positive emotions as individuals reflected on their business failure over a longer period of time. Taken together, this may imply that negative emotions are initially beneficial in directing attention toward an issue, while positive emotions may have a greater role to play in maintaining motivation in the long-term.

From a practical perspective, the results of this study hold important implications for how entrepreneurs manage negative feedback, challenges, and the subsequent negative emotions as they pursue their venturing goals. Given that the prevention-focused individuals experienced higher negative emotions after receiving negative feedback, were more likely to alter their strategy, and also spent more time working toward their goal, entrepreneurs would do well to attend to, rather than suppress negative

emotions in order to fuel their motivation in challenging situations. Furthermore, if entrepreneurs can frame the goals they set for their venture as ‘musts’, they may also find it easier to maintain motivation when they run into challenges. This study indicates that working under a prevention focus may keep entrepreneurs engaged and motivated to persist toward their goal in challenging times.

Limitations

The primary potential limitation of this study is its quasi-experimental nature. Since the dispositional affective states of participants were not manipulated, this study is not truly experimental and cannot absolutely establish causality. Nonetheless, the design of the study is true to the form of the research question and hypotheses, which sought to understand how positive and negative emotions arising from state-induced and trait-like personal characteristics influence motivation.

Another limitation of the study is its generalizability. The study was conducted with undergraduate students who were currently enrolled in an entrepreneurship course. Therefore, developing a quality venture pitch should arguably be a goal that is relevant to participants included in the sample. Still, the motivation of students in this type of situation may differ from that of actual entrepreneurs who are immersed in the process of starting a venture, as substantially more is at stake. Hence, the results may have been somewhat different if the study were conducted with nascent entrepreneurs. Yet, although goal pursuit for actual entrepreneurs may be more emotionally charged, it is very possible that the same pattern of emotionality and motivation apply to entrepreneurs working toward a longer-term goal as it does for aspiring entrepreneurs striving toward a short-term goal.

CONCLUSION

The predominant focus on emotion and motivation in the context of entrepreneurship has been on the benefits of positive emotions, such as confidence (Hayward et al., 2010) and passion (Cardon & Kirk, 2015). This research takes one step in the direction of providing a more holistic picture of emotion, including negative emotion, in the course of entrepreneurial venturing. This is particularly important because adversity, like negative feedback, and negative emotions are all but inevitable in undertaking an uncertain course of action such as establishing a new venture. The results of this study suggest that, consistent with the tenets of regulatory focus theory, negative emotions arising from challenges may actually motivate entrepreneurs to continue working towards their venturing goals. In sum, the regulatory focus of an individual provides one indication as to why some press on after experiencing adversity and negative emotions, and others withdraw.

CHAPTER 3
ENTREPRENEURIAL RESILIENCE AND RESILIENT MOTIVATIONAL
RESPONSES TO ADVERSITY – STUDY 2

INTRODUCTION

Scholars across many disciplines have sought to understand why some individuals are better able to weather challenges and continue striving toward their goals in adverse circumstances. One construct that holds the potential to explain this phenomenon is resilience. Due to multidisciplinary interest in this construct, resilience has been described in varying ways (King, Newman, & Luthans, 2016). Resilience is the ability to “bounce back” and adapt to stressful and adverse situations (Block & Block, 1980; Block & Kremen, 1996; Lazarus, 1993; Tugade & Fredrickson, 2004). Resilience is also deemed to be the process of reintegration and adaptation following a disruption (King et al., 2016; Luthar, Cicchetti, & Becker, 2000). In essence, resilience is both a capability (or set of capabilities) and a process (Hartmann et al., 2022; King et al., 2016) which can be developed over time through managing stress and adversity (Seery, Holman, & Silver, 2010). Recognizing the multifaceted nature of this construct, the management literature has offered a holistic definition of resilience. From this perspective, resilience is “...the process by which an actor (i.e., individual, organization, or community) builds and uses its capability endowments to interact with the environment in a way that positively adjusts and maintains functioning prior to, during, and following adversity” (Williams et al., 2017: 742).

As in the broader management domain, scholarly interest in the ability of individuals to develop and deploy resilience capabilities has surfaced in the entrepreneurship literature. Entrepreneurship scholars have examined resilience as a capacity and set of capabilities that entrepreneurs deploy to overcome extreme and persistent adversity (Bullough, Renko, & Myatt, 2014; Shepherd, Saade, & Wincent, 2020). Additionally, conceptual and qualitative work has proposed that resilience is reflected in an entrepreneur's ability to process and move forward from business failure (Byrne & Shepherd, 2015; Hayward et al., 2010). Research has also demonstrated that resilient entrepreneurs appraise difficulties as a challenge to be overcome, rather than a threat to be feared, and also utilize proactivity to foster venture survival (Chadwick & Raver, 2018).

Motivation, which is reflected in the direction, intensity, and persistence of goal-directed efforts (Campbell & Pritchard, 1976; Kanfer, 1990; Pritchard & Payne, 2003; Seo et al., 2004) is also important in understanding how individuals push through challenges when pursuing their goals. The construct of motivation is significant in the study of successful venturing (Renko et al., 2012; Wu et al., 2007), particularly given that entrepreneurs inevitably encounter adversity that serves to block the achievement of their venturing goals (Foo et al., 2015; Frese, 2009). However, the impact of resilience on motivation following an adverse experience is somewhat ambiguous. The psychology literature points to positive emotions as one of the primary mechanisms of resilience (Tugade & Fredrickson, 2004, 2007). From one viewpoint, researchers have indicated that positive emotions stemming from resilience may create a Pollyanna effect that prevents entrepreneurs from recognizing an issue, and thereby learning from adversity

(Williams et al., 2017). Furthermore, the affect-as-information perspective, which holds that individuals derive knowledge about a situation from their affective state, suggests that positive emotions signal that all is well, and thus may reduce an individual's attention to the adversity as well as the effort devoted to resolving the issue at hand (Carver, 2003). In other terms, some research implies that the positive emotions which accompany resilience may, at some level, hinder cognitive and motivational processes (Baron et al., 2012). However, other perspectives on resilience indicate that resilient individuals exhibit "realistic optimism" (Shepherd et al., 2020: 1), and that while they too experience negative emotions in the wake of stressful events, resilient people are adept at utilizing positive emotions to recover from adversity (Tugade & Fredrickson, 2004). If this is the case, then one might expect resilient entrepreneurs to maintain their motivational intensity following an adverse experience. Given these contradictory indications, in this research I ask *how does entrepreneurial resilience impact entrepreneurs' motivational responses to specific instances of adversity?*

In response to this question, I draw on the broaden-and-build theory of positive emotions as a lens through which to examine the construct of resilience (Fredrickson, 1998, 2001; Tugade & Fredrickson, 2004, 2007). I theorize that, based on their ability to both recognize and control negative and positive emotions, resilient entrepreneurs are able to learn from challenges, and maintain the value and expectancy of achieving their venturing goals under conditions of adversity. These processes, in turn, impact the motivational dimensions of direction, intensity, and persistence of goal-directed effort. In effect, this research seeks to understand whether resilient entrepreneurs are realistic optimists who learn from adversity, and utilize both positive and negative emotions to

move forward in the motivated pursuit of their venturing goals, or if they are naïve optimists who fail to acknowledge the information present in adverse signals encountered during goal pursuit.

This paper will proceed as follows. First, I review the relevant literature on general individual and entrepreneurial resilience. Next, I draw on the broaden-and-build theory of positive emotions, the resilience literature, the entrepreneurial learning literature, and the expectancy perspective of motivation to offer hypotheses regarding how and through which mechanisms entrepreneurial resilience impacts the direction, persistence, and intensity of goal-directed effort following adversity. Simultaneously, I consider salient, competing explanations for the impact of resilience on motivation following adversity, ultimately arguing that two primary perspectives on emotion, the affect-as-information perspective and the broaden-and-build theory, should be complementary in the present context. I test the resulting hypotheses in a sample of U.S. tech entrepreneurs and find some counterintuitive results. I discuss potential explanations for the surprising findings, consider the theoretical and practical implications from the results, address limitations to this work, and finally, identify areas for future research.

THEORETICAL BACKGROUND

The construct of resilience has been examined and adopted by various domains of scientific inquiry, and thus the concept is, necessarily, pluralistic in nature (King et al., 2016; Olsson, Jerneck, Thoren, Persson, & O’Byrne, 2015). However, in the psychology literature, and at the individual level of analysis, at the core of the resilience construct lies the ability to ‘bounce back’ and adapt in order to maintain optimal functioning through adverse experiences (Block & Block, 1980; Block & Kremen, 1996; Lazarus, 1993;

Tugade & Fredrickson, 2004). Importantly, resilience is theoretically and empirically distinct from the related constructs of hope, efficacy, and optimism (see Luthans & Youssef-Morgan, 2017). This research adopts the definition of resilience advocated by previous management scholars and defines resilience as "...the process by which an actor (i.e., individual, organization, or community) builds and uses its capability endowments to interact with the environment in a way that positively adjusts and maintains functioning prior to, during, and following adversity" (Williams et al., 2017: 742), with a particular focus on the individual level of analysis. Notably, the definition offered by Williams et al. (2017) sees resilience as the process of building and deploying capabilities. The current study focuses on the deployment of resilience capabilities. Furthermore, a capability, as it is utilized in Williams et al.'s (2017) definition refers to "...knowledge, skills, abilities, and processes (i.e., routines) that facilitate access to and manipulation of resources" (Teece, Pisano, & Shuen, 1997; Williams et al., 2017: 742). Skills and abilities can both be developed over time, and may also be inherent to some degree. Therefore, this definition recognizes that the capabilities of resilience may have trait-like components (Jacelon, 1997), and also that it may have state-like components that can be developed over time (Seery et al., 2010). In sum, resilience is both inherent and developed, and resilience capabilities are deployed to achieve optimal outcomes in the face of adversity. It is also worth noting that adversity, generally, can be considered an unfortunate or difficult circumstance that may vary in duration (Tian & Fan, 2014). The focus of the present work is on the deployment of resilience capabilities in response to a specific situation, particularly entrepreneurs' motivational responses to adversity. Exploring the research question, however, requires that one consider what the outcomes

of resilience capabilities and processes are; that is, what it means for a resilient individual 'bounce back' and 'adapt', as well as why or how these outcomes occur.

One prominent approach to individual resilience in the psychology literature takes the broaden-and-build theory of positive emotions as a lens through which to examine resilience. In a series of studies, Tugade and Fredrickson (2004) uncovered a number of insights about resilience which are relevant to the study at hand, and demonstrated that resilience is manifested through both cognitive and emotional processes in the face of adversity. In one experiment, participants were presented with a stressful situation: they were told that they would have to prepare and then subsequently deliver a speech. The study revealed that resilient participants relied on positive emotions and also appraised the situation as less threatening. In doing so, resilient individuals recovered from the negative emotions and cardiovascular arousal elicited by the stressful situation more quickly. Another study asked participants to reflect on a challenge that they were currently facing. In this research, resilient individuals were more likely to find some positive meaning in their challenge, despite experiencing levels of frustration similar to those of less-resilient individuals (Tugade & Fredrickson, 2004). From these studies, it appears that in some ways, 'bouncing back' implies recovering physically, in terms of cardiovascular activity, from a stressful event that elicits negative emotions. Furthermore, these studies suggest that one of the primary mechanisms through which resilient individuals 'bounce back' is through the use of positive emotions. In fact, researchers have even posited that resilient individuals are adept at using positive emotions, which are more readily accessible to them (Tugade & Fredrickson, 2007).

The entrepreneurship literature also has provided several indications as to the outcomes and mechanisms of resilience in entrepreneurs. For instance, research has shown that resilience has a positive impact on entrepreneurial intentions for those living in conditions of extreme adversity (Bullough et al., 2014), can enhance the chances of business survival (Chadwick & Raver, 2018), and may even increase the possibility that an entrepreneur will found a subsequent venture after a business failure (Hayward et al., 2010). Of particular interest to the research at hand, however, are two qualitative studies of entrepreneurial resilience. The first study analyzed the narratives of entrepreneurs who had experienced the failure of their venture, which could be seen as an extreme advent of entrepreneurial adversity. In these narratives, the researchers observed that some entrepreneurs initially experienced high levels of negative emotions, which were later replaced by high levels of positive emotions. These individuals reported the most ‘sensemaking’ of their failure which included learning about business management, the environment, and themselves. Conversely, the entrepreneurs that the researchers classified as the most resilient, that is, those who only experienced low negative and high positive emotions, seemed to engage in little sensemaking and learning following their business’s failure (Byrne & Shepherd, 2015). Furthermore, another qualitative study of entrepreneurs operating under conditions of persistent adversity noted that one of the distinguishing dimensions of resilience outcomes among the group studied was that of realistic optimism. In other words, highly resilient entrepreneurs had a positive outlook on the challenges that they faced, but were also realistic and seemed to acknowledge the past negative experiences that they had endured (Shepherd et al., 2020). This research

also points to the cognitive and emotional processes and outcomes that are connected to resilience.

This existing research on individual and entrepreneurial resilience has laid a groundwork for further study of the construct of resilience. However, despite these advances made, little is still known about how resilience is reflected in entrepreneurs' motivational responses to adversity, and also the mechanisms through which these responses manifest. Such an understanding is important because motivational responses to adversity impact the progress and success of the venture (Renko et al., 2012). This is where this research turns next. In the following paragraphs, I develop hypotheses about the motivational outcomes and mechanisms of entrepreneurial resilience under conditions of adversity. In these pages, I refer to 'entrepreneurial resilience' as the individual-level manifestation of resilience capabilities in the context of entrepreneurial venturing. I opt to utilize this context-specific term because research has indicated that resilience is, to some degree, domain specific (Maltby, Day, Hall, & Chivers, 2019). Furthermore, I refer to entrepreneurial adversity as a context-specific form of adversity. Entrepreneurial adversity includes challenges and unfortunate events encountered in the process of entrepreneurial venturing, which may serve to block the goals that entrepreneurs have set and strive for in their venturing efforts. For entrepreneurs starting a new venture, adversity may manifest in any number of forms such as the inability to obtain needed funding, the loss of a valuable business partner, or the presence of fierce competitive forces (Curtin, 2017). Following the research question, I seek to determine how resilience, as a set of capabilities, is manifested in entrepreneurs' motivational responses to a particular instance of entrepreneurial adversity.

HYPOTHESIS DEVELOPMENT

Resilience and Motivation Following Adversity: Direction of Effort

As motivation is not a construct that can be directly observed, it is often conceptualized in terms of its behavioral outcomes, which include the direction, intensity, and persistence of goal-directed efforts (Campbell & Pritchard, 1976; Kanfer, 1990; Seo et al., 2010, 2004). For an entrepreneur, these goals may be as broad as successfully launching a new venture (Cardon & Kirk, 2015), and are, in turn, comprised of more specific sub-goals like securing funding (Baron et al., 2016; Cardon & Kirk, 2015; Carter et al., 1996; Laguna et al., 2016). In the paragraphs that follow, I reflect on each of the three goal-directed motivational outcomes, specifically how and through which mechanisms entrepreneurial resilience may impact the direction, intensity, and persistence of effort following an adverse experience. First, I consider the direction of effort, which represents a choice between different goal-directed actions (Kanfer, 1990), or the strategy used to pursue the goal (Earley, Wojnaroski, & Prest, 1987). A change in the direction of an entrepreneur's goal-directed efforts may be equated with a change in the strategy or actions used to pursue the goal. Conversely, a stable direction of effort will be maintained if the strategy remains unchanged.

The psychology literature highlights that resilience entails "...flexible adaptation to the changing demands of stressful experiences" (Tugade & Fredrickson, 2007: 318), which indicates that resilience must indeed be related to changes in the direction of goal-directed efforts following adversity. However, I propose that, more specifically, resilience impacts the direction of entrepreneurs' efforts following adversity through its impact on entrepreneurial learning. First, consider that although encountering adversity

can be painful, it can also represent an opportunity for an entrepreneur to learn (Cope, 2005; Minniti & Bygrave, 2001). In the process of overcoming significant problems, entrepreneurs may learn about themselves as entrepreneurs, their business, the environment that they operate in, business management, and relationships that are important to the success of their venture (Cope, 2005). In particular, non-routine problems also provide the chance for higher-level learning (also known as double-loop (Argyris & Schön, 1978) or transformative (Merzirow, 1990) learning), in which entrepreneurs' underlying assumptions are changed, and can subsequently inspire new behaviors (Cope, 2005; Fiol & Lyles, 1985). Encounters with critical problems and adverse circumstances evoke such learning because they require a different approach and significant attention if they are to be overcome (Cope, 2005; Marsick & Watkins, 1990).

Nonetheless, not all entrepreneurs manage to learn from adversity (Cope, 2011). Might entrepreneurial resilience aid this learning process? The key to this connection lies in the processes that make resilience 'work'. One of the primary mechanisms of resilience is the ability to utilize positive emotions to overcome negative emotions stemming from stressful or adverse experiences (Tugade & Fredrickson, 2004, 2007). The existing literature, however, suggests both benefits and drawbacks to high levels of positive emotions. The affect-as-information perspective indicates that, in contrast to negative emotions that signify a problem, positive emotions signal to an individual that 'all is well' (Carver, 2003; Foo et al., 2009). In this way, positive affect can actually direct attention and processing efforts away from negative information, such as that contained in an adverse circumstance (Baron et al., 2012; Bless, 2001; Carver & Scheier, 2010). Hence, from this perspective, if resilient entrepreneurs only experience high

levels of positive emotions in the face of adversity, they may ignore the triggers that should cause them to pay attention to, and subsequently process and learn from adversity (Williams et al., 2017). In fact, this issue is reflected in Byrne and Shepherd's (2015) analysis of entrepreneurs recovering from business failure. In their interviews, the researchers noted that those seemingly resilient entrepreneurs who only experienced high levels of positive emotions did not appear to learn or make sense of the failure of their venture. Indeed, scholars have noted that beyond a point, positive affect can impede accurate perception and effective performance on cognitive tasks (Baron et al., 2012), which may include learning from adversity and failure.

Conversely, the broaden-and-build perspective on resilience suggests that the positive affect exhibited by resilient individuals should broaden the array of both thoughts and potential actions that come to mind (Fredrickson, 1998, 2001; Tugade & Fredrickson, 2007). Although negative emotions constrain thinking and bring to mind a specific set of behavioral responses, positive emotions encourage a broad, non-specific range of approach behaviors (Fredrickson, 1998, 2001). Positive emotions, from this perspective, facilitate flexible and integrative problem solving (Isen, Rosenzweig, & Young, 1991), and receptivity to new information (Estrada, Isen, & Young, 1997; Fredrickson, 2001). This research implies that because resilient entrepreneurs have access to and typically experience higher levels of positive emotions (Tugade & Fredrickson, 2004, 2007), they should be able to take in and learn from the information inherent in adverse events and circumstances, and find creative solutions to those issues.

Considering these two perspectives leaves researchers with an ambiguous indication as to the impact of resilience, and positive emotions, on learning from

adversity. Although both the affect-as-information and broaden-and-build perspectives may both be veritable, their contradictory implications can be reconciled through a somewhat overlooked, yet empirically validated mechanism associated with resilience. That is, although resilient individuals are characterized by their ability to call on and use positive emotions, they also experience negative emotions in response to stressful events. In one study, when asked to consider a significant challenge that they were currently facing, participants who demonstrated high resilience indicated feeling nearly equal levels of negative emotions, such as frustration, as did their less-resilient counterparts (Tugade & Fredrickson, 2004). Furthermore, a longitudinal study noted that in the wake of the September 11th terrorist attacks, resilient individuals also reported experiencing negative emotions such as anger and fear (Fredrickson, Tugade, Waugh, & Larkin, 2003). Yet, research has shown that in addition to experiencing these negative emotions, resilient individuals draw on positive emotions to ‘undo’ or overcome the negative emotions caused by stressful events (Tugade & Fredrickson, 2004). In other words, resilient individuals experience negative emotions in response to adverse events, but then subsequently draw on and experience positive emotions. This evidence is more consistent with the pattern of emotionality observed by Byrne and Shepherd (2015) in the group of entrepreneurs who demonstrated the *greatest* amount of learning and sensemaking from business failure (i.e., the group labeled ‘Now Feeling Good’). In that group, the researchers advised that negative emotions motivated sensemaking and learning, while positive emotions provided the resources to inform efforts in learning (Byrne & Shepherd, 2015). Similarly, I propose that because resilient individuals experience a combination of positive and negative emotions in response to adversity,

resilient entrepreneurs should be able to (1) acknowledge and direct their attention toward the information contained in adverse circumstances, which is consistent with the effects of negative affect predicted by the affect-as-information perspective (Foo et al., 2009), and (2) integrate and process that information to learn from the situation, which is consistent with the effects of positive emotion predicted by the broaden-and-build perspective (Fredrickson, 2001). Therefore, to the extent that adversity represents a significant problem to be overcome, and thereby an opportunity for higher-level learning, resilient entrepreneurs should have the capacity to capitalize on that opportunity, and demonstrate learning from adversity. Therefore, I propose that:

Hypothesis 1a: Entrepreneurial resilience is positively related to learning from adversity.

Furthermore, this learning can lead resilient entrepreneurs to take a different behavioral approach to their goal (Cope, 2005). As noted, higher-level learning includes alterations in the underlying assumptions that individuals use to determine their actions (Fiol & Lyles, 1985), which should subsequently lead to a change in actions. Essentially, learning from adversity should reveal to entrepreneurs that their existing way of approaching their venturing goal is not adequate, and therefore encourage them to alter the direction of their behavior. Following the change in behavior, entrepreneurs can monitor the effectiveness of the shift and determine the best course of action moving forward (Kim, 1993; Minniti & Bygrave, 2001). In the case of motivation and goal pursuit, this could mean that an entrepreneur might modify the tactics that they use to achieve their goal. In sum:

Hypothesis 1b: Learning from adversity is positively related to a change in direction of effort, following adversity.

Finally, connecting Hypotheses 1a and 1b:

Hypothesis 1c: Learning from adversity mediates the relationship between entrepreneurial resilience and a change in direction of effort following adversity.

Resilience and Motivation Following Adversity: Intensity and Persistence of Effort

Next, I consider the impact of the remaining two behavioral outcomes of motivation: intensity and persistence of effort. Intensity of effort represents the degree of effort that an entrepreneur dedicates to achieving their goal, while persistence represents the duration of that effort (Campbell & Pritchard, 1976; Kanfer, 1990; Seo et al., 2004). I opt to consider these constructs in tandem in this section because persistence and intensity are both positively related to the total amount of effort put forward toward a goal. As an entrepreneur persists longer in their goal-directed efforts, they invest more effort in total. Similarly, as an entrepreneur invests more intensely in their goal-directed efforts during a given period of time, their overall effort increases as well. Therefore, since both constructs are related to the total amount of effort put forward, it is likely that resilience will have a similar impact on each of these constructs.

First, there is reason to believe that resilience has a direct impact on both the intensity and persistence in effort following an adverse event. As noted previously, research has revealed that resilience is associated with the use of positive emotions following a stressful experience (Tugade & Fredrickson, 2004). Positive emotions, in turn, encourage an individual to move toward or approach a situation (Davidson, 1993), they encourage persistence in action (Carver & Scheier, 1990; Clore, 1994), and can even

facilitate improved performance on tasks (Fredrickson, 2001; Kaplan, Bradley, & Luchnam, 2009). However, just as very high levels of positive affect can interfere with perception and cognition, theorists also propose that, at a certain point, positive affect may be detrimental to entrepreneurs' motivation (Baron et al., 2012). This argument is similar to, yet distinct from, the potential negative effect of positive emotions on learning from failure. Particularly, in the affect-as-information tradition, positive emotions signify that sufficient progress is being made on a task, and thus efforts can be directed to achieving other goals (Carver & Scheier, 1990, 2010; Foo et al., 2009). In this way, positive affect may direct entrepreneurs to devote less intense and less persistent effort toward achieving a goal, following an adverse experience.

Nonetheless, research on resilience has provided evidence that the positive emotions experienced by resilient individuals are also accompanied by negative emotions in the wake of a stressful or adverse event (Fredrickson et al., 2003; Tugade & Fredrickson, 2004). For instance, when considering personal challenges, resilient individuals experience similar levels of frustration with those challenges, as do less-resilient individuals (Tugade & Fredrickson, 2004). Given that resilient individuals do indeed experience negative emotions in the face of a challenge, these emotions should, as predicted by the affect-as-information perspective, signal that sufficient progress is not being made, and therefore that effort should be devoted to the goal at hand (Foo et al., 2009). However, the positive emotions that resilient entrepreneurs experience subsequent to the initial negative emotional reaction to adversity should then energize them to 'right the ship', and move forward with the necessary actions required for goal achievement (Carver & Scheier, 1990; Clore, 1994; Davidson, 1993). Therefore, I propose:

Hypothesis 2: Entrepreneurial resilience is positively related to the intensity of effort following adversity.

Hypothesis 3: Entrepreneurial resilience is positively related to the persistence of effort following adversity.

In addition to this direct effect, the impact of resilience on the intensity and persistence in effort following adversity should work through other mechanisms. Value-expectancy frameworks (e.g., Vroom, 1964) have been used extensively to explain motivation. The value-expectancy perspective holds that motivation to pursue a particular course of action is a function of both the value of the goal to an individual, as well as the perceived expectancy of attaining that goal (Feather, 1992; Vroom, 1964). For resilient individuals, the intensity and persistence in goal-directed efforts should be maintained after an adverse experience because resilient individuals are able to maintain high levels of goal value and expectancy. Value and expectancy, in turn, are influenced by emotion (Erez & Isen, 2002; Feather, 1992; Seo et al., 2010, 2004), which is a key element of resilience (Tugade & Fredrickson, 2004, 2007). I explore each of these mediated relationships in turn below.

Goal value is a subjective concept, and can be defined in terms of the perceived consequences of attaining the goal (Weiner, 1985). For instance, a goal attained through one's own hard work and skill may be of greater value than one attained by luck because, while the first elicits a sense of pride, the second is much less relevant to oneself (Weiner, 1985). How though, might resilience impact the perceived value of attaining a goal following an adverse experience? The positive emotions experienced in the wake of an adverse experience broaden the thinking patterns of resilient individuals (Tugade &

Fredrickson, 2007). This broadened thinking allows for the consideration of a greater volume of information and more diverse information (Erez & Isen, 2002; Estrada et al., 1997). Positive emotions also incline resilient individuals to find the positive meaning or ‘silver lining’ in adversity (Fredrickson, 2004; Tugade & Fredrickson, 2004). For instance, resilient individuals are more able to see how adversity might benefit them in the long-term (Tugade & Fredrickson, 2004). Consequently, this broadened thinking and propensity to find positive meaning in challenges should allow resilient entrepreneurs to consider the positive and valuable outcomes of achieving their goals in spite of the adversity encountered. Resilient individuals should be able to fathom a wider array of positive outcomes of goal attainment, and they may also consider a goal achieved in spite of adversity *more* valuable, because overcoming such obstacles is likely to induce a sense of pride and accomplishment (Fredrickson, 1998; Weiner, 1985). In this way, resilient entrepreneurs, through the experience of positive emotions, are able to maintain or enhance the perceived value of a goal following an adverse experience. Hence, I suggest that,

Hypothesis 4: Entrepreneurial resilience is positively related to goal value following adversity.

As stated previously, expectancy-value perspectives of motivation have held that a person’s motivation to act is a function of both the value of that outcome, and the expectancy of attaining it (Feather, 1992; Vroom, 1964). Indeed, several studies have indicated the direct, positive effect of value on effort intensity (Feather & O’Brien, 1987; Seo et al., 2004). In essence, the more desirable that a goal is, the harder an individual is willing to work to achieve that goal. Therefore,

Hypothesis 5: Value placed on goal attainment following adversity is positively related to (a) intensity and (b) persistence in effort.

Connecting Hypotheses 4 and 5:

Hypothesis 6: Value placed on goal attainment following adversity partially mediates the relationship between entrepreneurial resilience and (a) intensity and (b) persistence in effort.

Goal expectancy is an individual's expectation that, should they exert a given level of effort, they can attain their stated goal (Seo et al., 2004; Vroom, 1964). The positive emotions experienced by resilient individuals in the wake of adversity should also influence goal expectancy following adversity. Positive emotions produce thinking that is both broad and creative (Fredrickson, 2001; Isen et al., 1987), which may, in turn, lead an individual to consider the variety of resources and paths that they have available to them as they seek to accomplish their goal. This assertion is consistent with the finding that resilient entrepreneurs are more likely to appraise a constraint as a challenge that they have the resources and potential to overcome (Chadwick & Raver, 2018). Knowing that one has the capacity to overcome a challenge or adverse situation to achieve a goal should induce a higher expectancy of attaining that goal (Heider, 1958).

Furthermore, one's mood also impacts the readiness with which one recalls past experiences. As a person is more likely to recall a memory that is consistent with their present mood, a pleasant mood or positive affect induces the retrieval of memories of pleasant emotional experiences (Bower, 1981; Carver & Scheier, 1990). Therefore, resilient individuals experiencing positive emotions should more readily recall previous positive experiences, such as past successes, even in the face of adversity. Remembering

these past successes, in turn, should enhance expectations of future successes (Carver & Scheier, 1990; Feather, 1992; Holland & Garrett, 2015), because these memories provide evidence that the entrepreneur is capable of achieving their goals. Following these arguments, I propose:

Hypothesis 7: Entrepreneurial resilience is positively related to the expectancy of attaining a goal following adversity.

Furthermore, the value-expectancy framework holds that individuals are willing to devote more effort to goals that appear to be feasible or attainable (Feather, 1992). The positive impact of expectancy on persistence has been empirically supported both in general (Feather, 1989) and in the context of entrepreneurial venturing (Holland & Garrett, 2015; Holland & Shepherd, 2013). Hence, I anticipate that expectancy should also have a positive impact on effort intensity and effort persistence in the present research.

Hypothesis 8: Entrepreneurs' expectancy of goal attainment following adversity is positively related to (a) intensity and (b) persistence in effort.

Connecting Hypotheses 7 and 8:

Hypothesis 9: Entrepreneurs' expectancy of goal attainment following adversity partially mediates the relationship between entrepreneurial resilience and (a) intensity, and (b) persistence in effort.

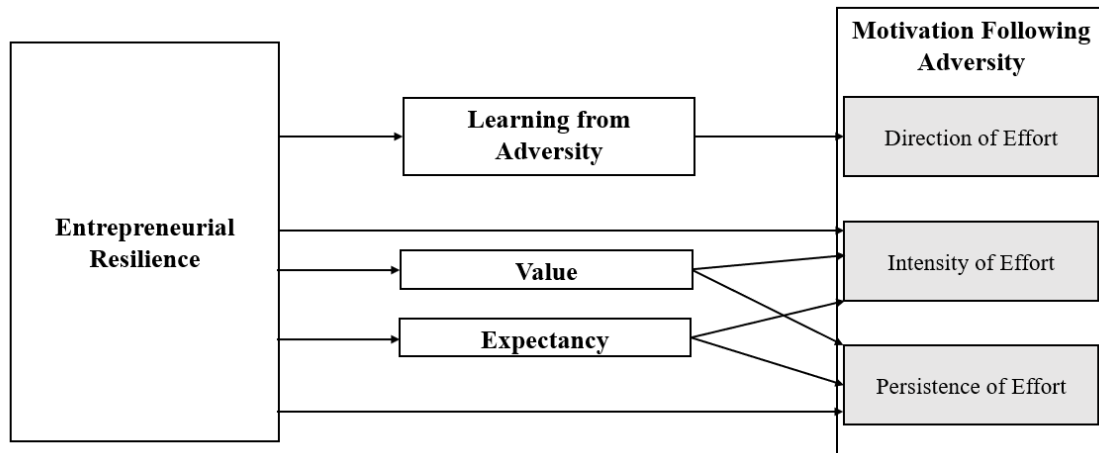
Readers will note that expectancy-value theory also holds that motivation is a multiplicative function of value and expectancy (Vroom, 1964). Nonetheless, this multiplicative effect has not been demonstrated empirically in all studies of this concept. Specifically, it appears that the multiplicative effect does not hold when the goal in

question is seen as a necessity (Shah & Higgins, 1997). In the context of entrepreneurial venturing, goals seem to be framed as more ‘necessary’ once a course of action has been started, because there is indeed some bias toward persistence. This bias exists for a number of reasons, including the influence of normative pressures. In these cases, entrepreneurs do not seek to maximize utility; rather, so long as value *or* expectancy is sufficiently high, the entrepreneur will persist with their chosen course of action (Holland & Garrett, 2015). Relatedly, when an entrepreneur encounters an adverse situation that serves to block their goals, they may feel it is necessary to continue pursuing their goals in part because there is a normative pressure to persist. That is, in determining the amount of effort to put forward following adversity, entrepreneurs may also exhibit a bias toward persistence, in which value and expectancy do not inevitably have a multiplicative effect on motivation. Therefore, although the direct effect of goal value and expectancy on the intensity and persistence in effort should be observed in cases where entrepreneurs encounter adversity, no interaction between these constructs is expected.

The full research model predicted in Hypotheses 1 through 9 is depicted in Figure 6 below:

FIGURE 6

Research Model



METHODS

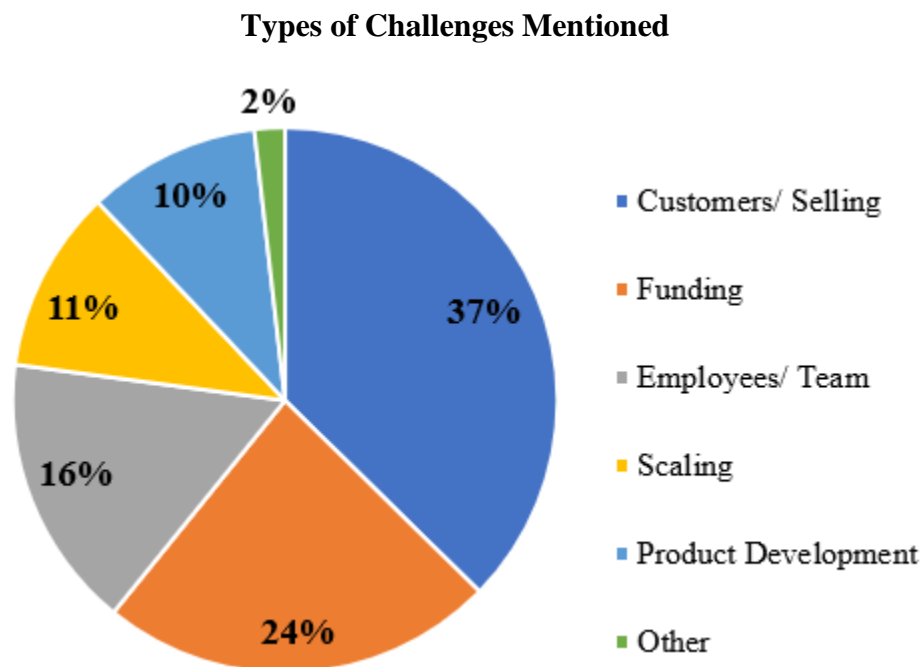
Study Design and Procedure

The causal relationships implied in the research model necessitated a non-standard approach to the data collection procedure. First, it was important to temporally separate the independent, mediating, and dependent variables in the study in order to reduce concerns of reverse causality. Second, as goal value and expectancy, motivation, and learning may change based on the day's events, it was also important to capture these constructs at multiple points in time to obtain more robust, average measures. Given these requirements, I opted to utilize a daily diary method of data collection which involved an initial survey followed by daily, interval-contingent prompts for responses to brief surveys.

After securing IRB approval (study #20.0590), I initially asked participants to complete an introductory, web-based survey that collected baseline measures of resilience, affect, and several control variables. Key to this initial survey were two questions that asked participants to describe the primary challenge that they were

currently facing in their business, and how this challenge impacted a goal they set for their venture; in other words, they were asked to reflect on a specific form of adversity related to their goal-directed venturing efforts. Figure 7 below shows that the challenge most frequently mentioned was accessing and making sales to customers. Respondents also reported issues with securing funding, working with employees and team members, scaling the venture, and developing the product. The challenge and goal identified served as the focus for reflection later in the study. After completing the initial survey, participants were sent an orientation document with an outline of the remainder of the study, and a reminder of the goal and challenge they had identified.

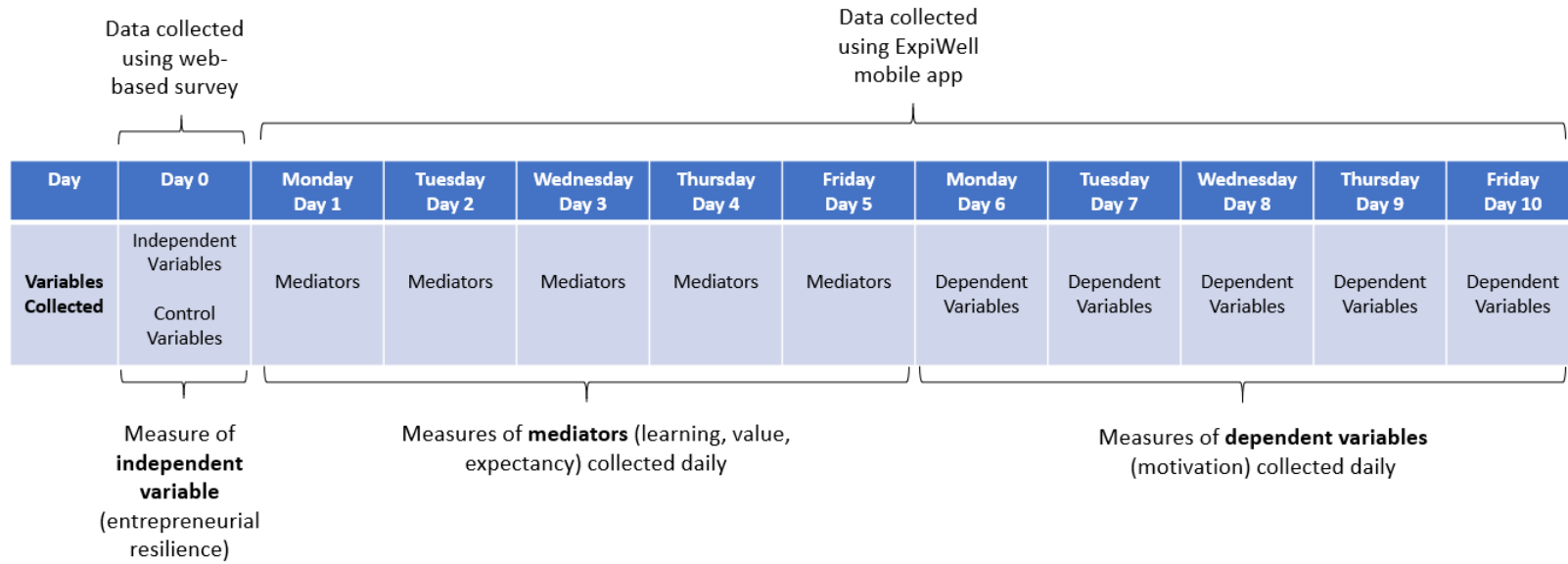
FIGURE 7



Participants were then asked to download an experience sampling mobile application onto their personal phones. The app was programmed to send prompts to complete a brief survey once per day, Monday through Friday, over the course of two weeks. The daily surveys took approximately 5 minutes to complete, were available

starting at 4 p.m. and had to be completed by midnight each day. The ability to capture respondents' experiences closer to the time that they occur (i.e., at the end of each working day) is one of the primary benefits of this methodology, as it reduces recall bias (Fisher & To, 2012). Over the course of the first week of daily surveys, data on the mediating variables (learning, value, expectancy) was collected. Then, over the course of the second week of the study, data on the dependent variables (direction, intensity, and persistence in effort) was collected from respondents. Figure 8 below depicts the data collection timeline.

FIGURE 8
Data Collection Schedule



Sample

Participants for this study were identified using the Crunchbase database of startups. Recently, research on entrepreneurship and startup financing have relied on data obtained from this database (e.g., Bernstein, Korteweg, & Laws, 2017; Cumming, Walz, & Werth, 2016; Haddad & Hornuf, 2019). In the present research, the database was used to identify a relatively homogenous sample of venture founders, and to obtain contact information for potential participants. The frame of eligible participants was narrowed to include those whose ventures that were founded between January 2016 and January 2020 and had 50 or fewer employees in order to ensure that those included in the study were truly in the early stages of business venturing. To enhance the homogeneity of the sample, the list of eligible participants was further narrowed to include only those whose ventures were privately held, for-profit, headquartered in the United States, and based in a technology-focused industry such as software, analytics, or apps. The founder or co-founder of those ventures that fit the eligibility criteria were then contacted via email or LinkedIn and asked to participate in the study. As Fisher and To (2012) note, it can be challenging to find participants who are willing to engage in a longitudinal study that requires repeated responses over time. Therefore, to incentivize participation, participants were promised entry into a drawing for one \$100 and one \$500 prepaid Visa card and were also offered a report of their responses throughout the study.

Participants were recruited and the study was administered in 14 rounds from August, 2020 to July, 2021^a. Of the 9,400 founders contacted, 353 agreed to participate

^a Typically, I recruited participants for two to three weeks, then administered the study over the following two weeks. I repeated this process 14 times to collect a sufficient sample.

and completed the initial web-based survey. Of those who completed the survey, 234 completed at least one of the daily surveys. However, following the guidelines set by previous studies using a similar methodology (Uy et al., 2015), I retained only those participants who responded to at least two of the daily surveys each week (four surveys total). This left a final sample of 166 venture founders. The final group of 166 respondents provided 1,361 daily observations. The response rate to the daily surveys was 82%, which is consistent with past studies utilizing a similar methodology (c.f., Foo et al., 2009; Schwartz et al., 2020). The average age of participants was 44.23 years, and the majority held either a bachelor's or master's degree. In this sample, 79.5% were male and 20.5% were female.

Measures

Entrepreneurial resilience. Entrepreneurial resilience was measured using the shortened, 14-item version of the Resilience Scale developed by Wagnild and Young (1993). This scale provides a single-factor measure of resilience which has been replicated over time (Madewell & Ponce-Garcia, 2016). Variations of this measure have been used in previous work on resilience in entrepreneurship as well (e.g., Chadwick & Raver, 2018; Hmieleski & Carr, 2008). The instrument asks participants to rate the extent to which they agree or disagree with a number of statements such as “I usually manage one way or another” and “I can get through difficult times because I’ve experienced difficulty before” on a scale from 1 to 7. Respondents were directed to consider these questions as they apply to their work context; that is, in the context of starting and running their business.

Entrepreneurial resilience was also captured using the six-item Brief Resilience Scale developed by Smith et al. (2008). This scale provides a single-factor measure of resilience, and is designed to capture the ability “to bounce back and recover from stress” (Smith et al., 2008: 199). The scale has shown sufficient internal consistency and test-retest reliability (Smith et al., 2008), and has recently been used to measure resilience by entrepreneurship researchers (e.g., Yulita et al., 2020). This scale contains three positively-worded and three negatively-worded statements such as “I tend to bounce back quickly after hard times”, and “I have a hard time making it through stressful events” (Smith et al., 2008: 196). Responses to each question are given on a 5-point scale ranging from ‘strongly disagree’ to ‘strongly agree’.

High-level learning from adversity. In each daily survey during the first week of the study, respondents were asked if they had any new thoughts about their challenge or their goal over the last 24 hours. Using the mobile app, participants were able to take an audio recording of their reflections, which was then transcribed using the NVivo transcription platform, and later checked for accuracy. The transcribed text was analyzed using the LIWC dictionary for ‘insight’, which searches for key words such as ‘learn’, ‘know’, ‘reason’, and ‘thought’. LIWC then produces a measure which represents the prevalence of these key words in the recorded text. The final measure of this variable was the average prevalence of the key words in respondents’ recordings over the first five days of data collection.

Goal value and expectancy. In measuring goal value and expectancy, I opted to follow Seo and colleagues (2010) and Klein (1991) by asking respondents to rate their subjective expectancies and the value placed on a range of performance outcomes.

Specifically, respondents were asked to rate the extent to which they anticipated being able to achieve a degree of the goal that they wrote about in the initial survey. The respondents were asked to assess the probability that they would accomplish (1) all of their goal, (2) most of their goal (more than half), and (3) at least some of their goal, according to the following scale: 1 – extremely unlikely, 2 – unlikely, 3 – somewhat unlikely, 4 – neutral, 5 – somewhat likely, 6 – likely, 7 – extremely likely. The individual measures of expectancy showed sufficient reliability across the first five days of the study, with Cronbach’s alpha scores of 0.915 for the first expectancy item, 0.876 for the second, and 0.884 for the third. The daily reports of each measure were then averaged to obtain a week one average for the first, second, and third expectancy items, individually. Similarly, respondents were also asked to rate how valuable or important it was to them to accomplish (1) all of their goal, (2) most of their goal (more than half), and (3) at least some of their goal according to the following scale: 1 – not at all important, 2 – low importance, 3 – slightly important, 4 – neutral, 5 – moderately important, 6 – very important, 7 – extremely important. The individual measures of value showed sufficient reliability across the first five days of the study, with Cronbach’s alpha scores of 0.949 for the first value item, 0.928 for the second, and 0.917 for the third. The daily reports of each measure were then averaged to obtain a week one average for the first, second, and third value items, individually.

Motivation: Direction of effort. Kanfer (1990) defines the direction of effort as the choice of actions, and indicates that in work behavior, this construct has been operationalized as job choice, task choice, and absenteeism, for example. In this study, I adapted the idea of ‘task choice’ to include the strategies or actions that an entrepreneur

uses to pursue their goal. Therefore, direction of effort generally is defined as a choice of actions, and in the context of this study, is defined and operationalized as the choice of actions or strategies used to pursue one's goals. Although the existing literature does not offer an operationalization of this measure that could be adopted in the current research, I relied on Kanfer's (1990) definition to develop a two-item measure for the construct. Specifically, respondents were asked "To what extent did you change the strategy that you used to pursue your goal today?" and "To what extent did you try a new approach to achieving your goal today?". Responses were given on a scale of 1 to 5 with 1 being 'not at all', and 5 being 'a great deal'. I tested the reliability of each of the measures across the last five days of the study. The reliability was acceptable with an alpha of 0.714 for the first direction item, and 0.705 for the second. Therefore, I averaged the second five days of responses for each item individually to obtain a week two average for the first and second direction items, individually.

Motivation: Intensity of effort. Kanfer (1990) notes that effort intensity can be physical or cognitive. In this case, I chose to look at cognitive effort intensity. To measure goal effort intensity, past studies have asked respondents "How hard were you trying..." (Yeo & Neal, 2015), and "How much effort did you put into venture tasks..." (Uy et al., 2015: 381). Such studies have also asked to what extent respondents agree with statements such as "When I work on this project, I do with intensity", "I work at my full capacity in all of my contributions to this project", and "When I work on this project, I really exert myself to the fullest" (Ke & Zhang, 2009: 65). Following these precedents, I adapted the measure used by Foo et al. (2009) and used the following question: "When you worked on your goal today, how much effort did you devote to

it?”. Responses were given on a scale from 1 to 5 with 1 being ‘very little’ and 5 being ‘a lot’.

Additionally, based on Kanfer’s (1990) discussion suggesting that effort intensity represents how much of the individual’s total cognitive resources are dedicated to the task, I asked respondents to ‘fill in the blank’ on the following statement: “When I worked on tasks related to this goal today, I was X% focused”. This percentage was then converted to a five-point scale. The alpha reliability coefficient for the first intensity item over the last five days of the study was 0.904, and was 0.893 for the second item. Subsequently, I averaged each item to obtain average week two measures of the first and second intensity measure, individually.

Motivation: Persistence of effort. Persistence of effort has repeatedly been defined and operationalized as the duration of effort, or the amount of time put toward a task (e.g., Kanfer, 1990; Seo et al., 2010, 2004). Therefore, following past work (e.g., Seo et al., 2010), I operationalized this construct as the average amount of time spent working on the goal each day over the second week of the study. Specifically, respondents were asked, “When you worked on your goal today, how much time did you spend on it?” Daily responses were captured in minutes. These scores were then averaged to obtain an average week two measure of persistence.

Positive and negative affect. During the daily survey prompts, respondents also completed an abbreviated form of the Scale of Positive and Negative Experience developed by Diener et al. (2010). This questionnaire asks respondents to rate how often they generally experience several positive and negative feelings. This scale was selected because it captures a range of both valence and activation of emotions and has been

advocated in previous entrepreneurship research (Foo et al., 2015). This measure is captured not to test a particular hypothesis, but rather to examine the mechanisms underlying the hypothesized relationships in the model. Across the 10 days of data collection, the measures of positive emotion (Cronbach's alpha = 0.946) and negative emotion (Cronbach's alpha = 0.910) showed excellent reliability.

Controls. Appropriate control measures were captured in the initial, web-based survey. These included measures of years of experience starting and running a business, as well as entrepreneurial self-efficacy (Cardon & Kirk, 2015). Entrepreneurial self-efficacy was measured using the four-item scale developed by Zhao, Hills, and Siebert (2005) and had an sufficient internal consistency (Cronbach's alpha = 0.734). The four items from this scale were averaged to obtain a mean score for each participant. I controlled for entrepreneurial passion using Cardon and colleagues (2013) 13-item scale. In their study on work motivation, Seo and colleagues (2004) also note that it is important to account for individual differences such as age and gender; therefore, controls for the respondent's age and gender were included. I also included a control measure of the average number of hours the respondent reported working on their venture on a weekly basis. Additionally, I added a control for the respondents' overall performance expectations for their business. Respondents were asked "Compared to your expectations for your venture, how is your venture currently performing?" Possible responses ranged from 1 to 5 with 1 being 'Much worse than my expectations' and 5 being 'Much better than my expectations.' Finally, as respondents self-reported the measures in this study, it was important to control for participants' propensity to respond in a socially desirable manner. Therefore, I also administered the short form of the Crowne Marlowe Social

Desirability Scale. The Cronbach's alpha coefficient for the scale was 0.688. This falls slightly below the cutoff of 0.70 (Nunnally, 1978); however, given that this item was used as a control measure, I opted to include the control despite this shortcoming. The socially desirable responses given to the 13 questions were summed to give a final measure of social desirability for each respondent.

The correlations, means, and standard deviation for each of the variables used in the study are reported in Table 4 below.

TABLE 4
Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Entrepreneurial Resilience (RS-14)																			
2. Entrepreneurial Resilience (BRS)	0.372**																		
3. Average Learning (Week 1)	0.009	0.113																	
4. Average Value (Week 1)	0.188*	0.145	0.101																
5. Average Expectancy (Week 1)	0.259**	0.219**	0.016	0.667**															
6. Average Change in Direction (Week 2)	0.017	-0.014	0.140	0.045	0.017														
7. Average Intensity (Week 2)	0.032	0.041	-0.063	0.286**	0.202**	0.302**													
8. Average Persistence (Week 2)	-0.007	0.023	-0.005	0.237**	0.157*	0.299**	0.633**												
9. Age	0.245**	0.214**	-0.114	0.016	0.017	-0.041	-0.098	-0.051											
10. Gender	0.042	-0.077	0.013	0.014	-0.014	0.048	0.050	-0.102	0.026										
11. Years of Experience	0.185*	0.161*	-0.099	0.002	0.066	-0.001	0.030	0.018	0.522**	-0.185*									
12. Entrepreneurial Passion	0.378**	0.258**	0.157*	0.230**	0.081	0.083	0.152	0.122	0.038	-0.065	0.185*								
13. ESE	0.249**	0.189*	0.041	0.305**	0.267**	0.018	0.243**	0.219**	0.089	-0.059	0.134	0.340**							
14. Social Desirability	0.310**	0.169*	-0.012	-0.087	-0.073	-0.041	-0.106	-0.172*	0.112	-0.026	0.124	0.122	0.090						
15. Performance Expectations	0.199*	0.122	-0.005	0.064	0.247**	0.054	0.093	0.112	0.002	-0.067	0.008	0.042	0.081	0.088					
16. Weekly Hours on Venture	0.017	0.120	-0.011	0.317**	0.137	0.007	0.152	0.354**	0.066	-0.199*	0.094	0.060	0.154*	0.013	0.140				
17. Average Positive Emotion	0.403**	0.192*	0.036	0.108	0.329**	-0.010	0.004	-0.101	0.069	0.194*	0.194*	0.213**	0.205**	0.071	0.237**	-0.024			
18. Average Negative Emotion	-0.414**	-0.390**	0.143	0.025	-0.221**	0.243**	0.104	0.151	-0.307**	0.012	-0.197*	0.011	-0.092	-0.159*	-0.203**	-0.037	-0.406**		
Mean	86.920	5.506	2.382	5.833	5.524	2.373	3.278	219.723	44.230	1.200	10.861	56.065	4.130	8.260	2.900	53.746	13.811	6.682	
Standard Deviation	6.766	0.916	2.337	1.013	1.133	0.845	1.175	173.115	11.083	0.405	9.679	13.632	0.610	2.757	1.057	18.086	2.701	2.024	

n = 166

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

ANALYSIS AND RESULTS

I utilized structural equation modeling (SEM) to test the proposed relationships in the research model. I selected this approach because SEM allows the researcher to simultaneously evaluate direct and indirect (mediated) effects (MacKinnon, Lockwood, West, & Sheets, 2002; MacKinnon, Lockwood, & Williams, 2004). I opted to utilize partial least squares (PLS-) SEM instead of traditional covariance-based (CB-) SEM for several reasons. First, CB-SEM requires that data meet the assumptions of univariate and multivariate normality (Byrne, 2016). However, the measures of learning and persistence both deviated substantially from the normal distribution, and attempts at transforming these variables were only marginally successful. Furthermore, the model showed significant multivariate non-normality. When evaluating the initial measurement model, I found that the multivariate kurtosis score was 128.239, which is substantially larger than the maximum value of 5 suggested by Byrne (2016) and Bentler (2005). PLS-SEM, in contrast, does not require the data to be normally distributed. Furthermore, PLS-SEM is well-suited to handling complex structural models, with larger numbers of inner model relationships, latent variables, and indicator variables (Hair, Sarstedt, Pieper, & Ringle, 2012)^b. Finally, PLS-SEM is particularly useful when the goal of the research is to estimate causal, predictive relationships between constructs (Hair, Risher, Sarstedt, & Ringle, 2019; Thai & Turkina, 2014), and works well for both large and small samples (Hair, Ringle, & Sarstedt, 2011). Studies employing PLS-SEM have been published in leading scholarly journals including the *Academy of Management Journal* (e.g., Groth,

^b Hair et al (2012) note an average of 10.4 inner model path relationships in studies employing PLS-SEM, which is substantially higher than that of similar uses of CB-SEM. The initial structural model used in this study had 59 inner model paths (including controls). This complexity provides one justification for the use of PLS-SEM over CB-SEM.

Hennig-Thurau, & Walsh, 2009), Management Science (e.g., Im & Rai, 2008), the Strategic Management Journal (e.g., Gruber, Heinemann, Brettel, & Hungeling, 2010), and the Journal of Business Venturing (e.g., Thai & Turkina, 2014). For these reasons, I used SmartPLS3 (Ringle, Wende, & Becker, 2015) to test the hypothesized relationships.

In comparison to CB-SEM which seeks to reproduce the covariance matrix, PLS-SEM seeks to maximize the amount of explained variance in the dependent variables (Dijkstra, 2010). PLS-SEM utilizes an algorithm which first estimates latent constructs' scores and then calculates the model's outer loadings and path coefficients. SmartPLS3 uses bootstrapping in conjunction with the PLS algorithm to estimate the significance of model paths. In all analyses herein, significance tests are reported based on the results of bootstrapping using 500 subsamples drawn from the original dataset, with replacement. Given the different aim in PLS-SEM estimation, traditional model fit criteria used in CB-SEM are less relevant. Rather the quality of the PLS-SEM model is evaluated based on its predictive power (Hair et al., 2012). Therefore, readers will note the use of different criteria to evaluate the measurement and structural models herein, as compared to model fit statistics typically reported with CB-SEM.

Confirmatory composite analysis. As PLS-SEM uses the total variance to evaluate the composite latent variables (in contrast to CB-SEM which uses only common variance), evaluation of the measurement model in PLS-SEM is referred to as confirmatory composite analysis (CCA). This step is analogous to the confirmatory factor analysis used in CB-SEM (Manley, Hair, Williams, & McDowell, 2021). In conducting the CCA, I followed the recommendations of Hair, Howard, and Nitzl (2020). As a first step, I examined the indicator loadings for each of the latent constructs (i.e.,

resilience, value, expectancy, direction, intensity). Hair et al., (2020) recommend that all indicators should load significantly on their associated construct, and that loadings should be above 0.708. The indicator loadings on the constructs of value, expectancy, direction, and intensity were satisfactory; however, the resilience construct proved to be problematic. I systematically removed underperforming items from the RS-14. With just two indicators remaining, I still found that only one (item 13) met the minimum threshold. For this reason, I next attempted to construct and evaluate the measurement model using the six items from the BRS as reflective indicators of the resilience construct.

Again, I started by systematically analyzing and reviewing the indicator loadings for the latent constructs. After removing items 2, 5, 6, and 4 from the BRS measure, all of the indicators loaded significantly on their respective latent constructs, with loadings greater than 0.708. Subsequently, I proceeded to evaluate reliability, and found that the Cronbach's alpha (0.752) and composite reliability (0.808) statistics exceeded the minimum value of 0.70 (Hair et al., 2020; Nunnally, 1978). Next, I evaluated the convergent validity by examining the average variance extracted (AVE) for each of the latent constructs. The AVE exceeded the minimum value of 0.50 for each construct (Fornell & Larcker, 1981; Hair et al., 2020). Additionally, Hair and colleagues (2020) recommend assessing the discriminant validity of the measurement model using the heterotrait-monotrait (HTMT) ratio of correlations (Henseler, Ringle, & Sarstedt, 2015). I found that the HTMT correlations between each pair of the latent constructs was below the suggested limit of 0.85 (Henseler et al., 2015), and thus the measurement model

demonstrated sufficient discriminant validity as well. The CCA results of the final measurement model are reported in Table 5 below.

TABLE 5
CCA Results

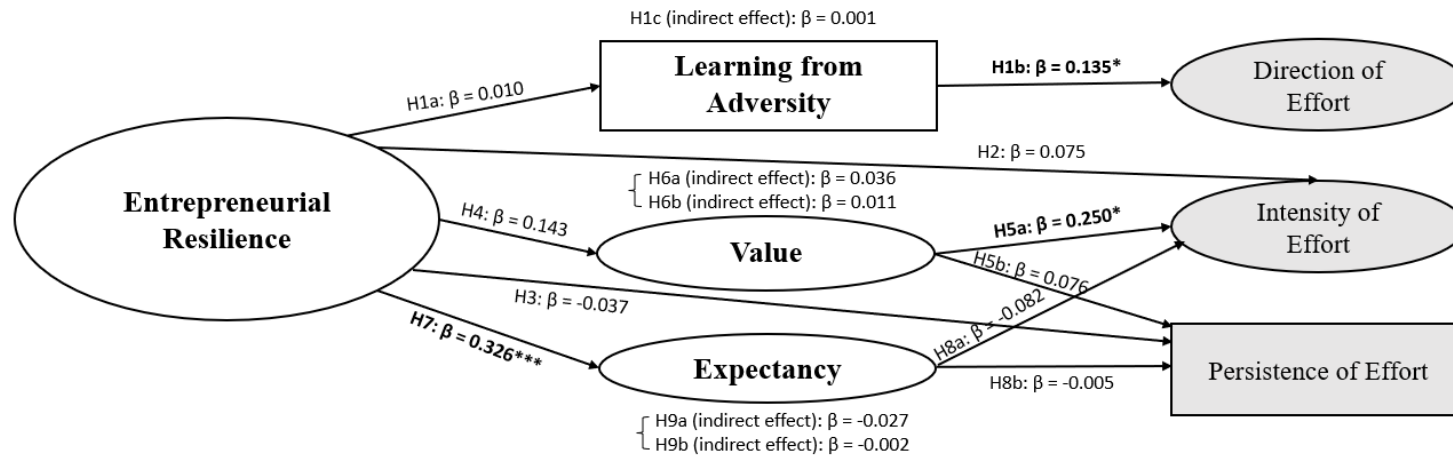
Construct	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
Resilience	BRS-1	0.946	0.752	0.883	0.791
	BRS-3	0.828			
Value	Val1	0.898	0.920	0.949	0.862
	Val2	0.974			
	Val3	0.911			
Expectancy	Exp1	0.864	0.898	0.936	0.831
	Exp2	0.954			
	Exp3	0.915			
Change in Direction	Dir1	0.897	0.928	0.947	0.900
	Dir2	0.998			
Intensity of Effort	Intens1	0.920	0.816	0.916	0.845
	Intens2	0.918			

Hypothesized model results. Following the CCA, I proceeded to test the hypothesized relationships in the structural model using the PLS algorithm and bootstrapping with 500 resamples. I constructed the model following Figure 6, and included the control variables as noted in Figure 9 below. It should be noted that social desirability was modeled on each of the study constructs to parcel out this aspect of common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Again, in contrast to CB-SEM which relies on model fit statistics to evaluate the structural model, Hair and colleagues (2020) recommend a multi-step approach to evaluating the quality of the structural model which prioritizes the predictive ability of the model, and also serves to test the hypothesized relationships in the model. I outline these steps in the following paragraphs.

As a first step, Hair and colleagues (2020) recommend examining the model for issues with multicollinearity, as this can distort the beta coefficients in the model. In the structural model, all VIFs between the latent variables were under 3.0, which indicated that multicollinearity was not a problem in the model (Hair et al., 2020). The next step is to examine the path coefficients in the model. I noted that only three of the hypothesized paths in the model were statistically significant: the path between learning and a change in direction of effort was positive and significant ($\beta = 0.135$, $p < 0.05$), as predicted in Hypothesis 1b, the path between resilience and expectancy was positive and significant ($\beta = 0.326$, $p < 0.001$) as predicted in Hypothesis 7, and the path between value and intensity of effort was positive and significant ($\beta = 0.250$, $p < 0.05$), as predicted in Hypothesis 5a. As noted in Table 6 below, none of the other direct or indirect paths hypothesized in the research model were statistically significant.

FIGURE 9

Model Results



Controls on IV (Entrepreneurial Resilience)
 Social Des.: $\beta = 0.057$

Controls on Mediators (Learning, Value, Expectancy)
 Age: $\beta = -0.074, 0.002, -0.077$
 Gender: $\beta = 0.009, 0.093, 0.066$
 Yrs. Exp.: $\beta = -0.091, -0.077, 0.046$
 Passion: $\beta = 0.178^*, 0.135, -0.051$
 ESE: $\beta = 0.001, 0.215^*, 0.221^{**}$
 Social Des.: $\beta = -0.013, -0.122, -0.134^*$
 Perf. Exp.: $\beta = -0.010, -0.023, 0.170^*$
 Hours: $\beta = -0.006, 0.311^{***}, 0.093$

Controls on DVs (Direction, Intensity, Persistence)
 Age: $\beta = -0.041, -0.200^*, -0.071$
 Gender: $\beta = 0.064, 0.076, -0.031$
 Yrs. Exp.: $\beta = 0.036, 0.152, 0.019$
 Passion: $\beta = 0.076, 0.059, 0.065$
 ESE: $\beta = -0.011, 0.133, 0.150$
 Social Des.: $\beta = -0.053, -0.135, -0.191^*$
 Perf. Exp.: $\beta = 0.066, 0.101, 0.075$
 Hours: $\beta = 0.017, 0.102, 0.292^{***}$

TABLE 6**Summary of Hypothesis Tests**

Hypothesis	Relationship Tested	Path Coefficient	t-value	Supported?
1a	Entrepreneurial Resilience --> Learning	0.010	0.128	No
1b	Learning--> Direction	0.135	2.079	Yes
1c	Entrepreneurial Resilience --> Learning--> Direction	0.001	0.121	No
2	Entrepreneurial Resilience --> Intensity	0.075	0.852	No
3	Entrepreneurial Resilience --> Persistence	-0.037	0.358	No
4	Entrepreneurial Resilience --> Value	0.143	1.898	No
5a	Value --> Intensity	0.250	2.147	Yes
5b	Value --> Persistence	0.076	0.686	No
6a	Entrepreneurial Resilience --> Value --> Intensity	0.036	1.229	No
6b	Entrepreneurial Resilience --> Value --> Persistence	0.011	0.538	No
7	Entrepreneurial Resilience --> Expectancy	0.326	4.661	Yes
8a	Expectancy --> Intensity	-0.082	0.622	No
8b	Expectancy --> Persistence	-0.005	0.045	No
9a	Entrepreneurial Resilience --> Expectancy --> Intensity	-0.027	0.594	No
9b	Entrepreneurial Resilience --> Expectancy --> Persistence	-0.002	0.156	No

Having evaluated the statistical significance of the paths, I next sought to evaluate the predictive ability of the model using the R^2 values associated with the endogenous variables. The independent variables in the model were only able to predict 3.8% of the variation in learning, 23.7% of the variation in value, 24.4% of the variation in expectancy, 3.8% of the variation in direction of effort, 19.0% of the variation in intensity of effort, and 20.9% of the variation in persistence. With all R^2 values below 25%, this indicated that the independent variables were weak predictors of the endogenous constructs in the structural model (Hair et al., 2011).

As a second test of the predictive ability of the model, I examined the f^2 values of the significant model paths. These values indicate the size of the effect of one variable on another. The effect size of learning on direction of effort ($f^2 = 0.018$), of resilience on expectancy ($f^2 = 0.124$) and the effect of value on intensity of effort ($f^2 = 0.033$) were all between 0.02 and 0.15. This indicates that, although the effects were statistically significant, each independent variable had only a small effect on the respective dependent variable (Hair et al., 2020).

Finally, I examined the within-sample predictive relevance of the key model constructs using the blindfolding procedure. In this procedure, SmartPLS3 systematically removes data points, and then uses PLS-SEM to predict the deleted data points. The resulting test statistic is Stone-Geisser's Q^2 value, which is the sum of the squared differences between the omitted and predicted data points (prediction error) (Geisser, 1974; Hair, Hult, Ringle, & Sarstedt, 2017; Stone, 1974). With Q^2 values below 0, the variables in the model were not considered to be meaningful predictors of learning or direction of effort. However, expectancy ($Q^2 = 0.173$), value ($Q^2 = 0.172$), intensity (Q^2

= 0.082), and persistence ($Q^2 = 0.086$) each had Q^2 values greater than 0, but less than 0.25. This suggests that the independent variables in the model had a predictive relevance that was small, yet meaningful (Hair et al., 2020), as it relates to these constructs.

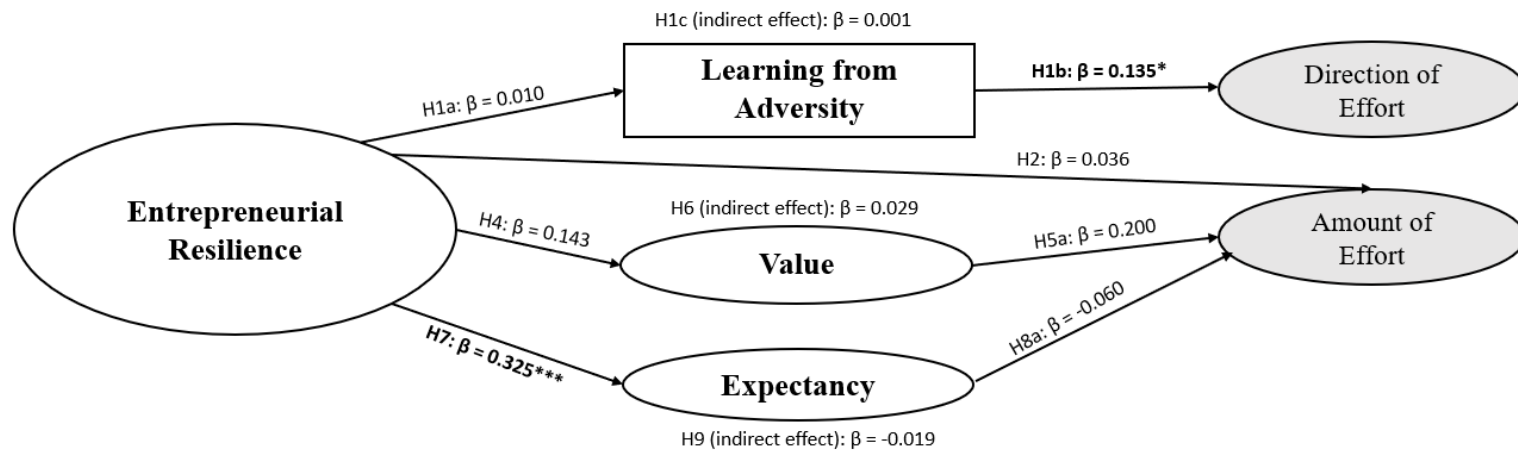
Considering these results as a whole, I concluded that, although Hypotheses 1b, 5a, and 7 were supported, the overall structural model had weak predictive power. I came to this conclusion based on the fact that (1) the variables in the model accounted for only a small proportion of the variation (R^2) in the endogenous constructs, (2) the predictive relevance (Q^2) of the variables in the model as it relates to the endogenous constructs was small, and (3) even for those paths that were statistically significant, the effect size (f^2) of the key independent variables was small.

Alternative models. Given the general lack of predictive power in the structural model, I returned to theory to test alternative configurations of the model. As I noted in developing Hypotheses 5 and 8, both the intensity of effort and the persistence of effort are positively related to the total amount of effort put forward toward a goal. Therefore, I re-specified the model using a single latent construct for ‘amount of effort’, and modeled this construct as reflective of the two measures of intensity and the measure of persistence. Each of the measures loaded significantly onto the latent construct with loadings above 0.708, and the measure showed sufficient reliability (Cronbach’s alpha = 0.844, CR = 0.906) and discriminant validity (AVE = 0.762). Again, all VIFs were below the threshold of 3.0. The significance of the paths between learning and direction, and between resilience and expectancy remained unchanged; however, with this modification, the path between value and amount of effort became non-significant, as

pictured in Figure 10 below. Furthermore, the R^2 value of 21.1% and Q^2 value of 0.115 indicated that the independent variables were weak predictors of the composite effort construct, and were also of small predictive relevance. In all, this respecification did not substantially improve the predictive power of the model.

FIGURE 10

Alternative Model 1



Controls on IV (Entrepreneurial Resilience)
 Social Des.: $\beta = 0.056$

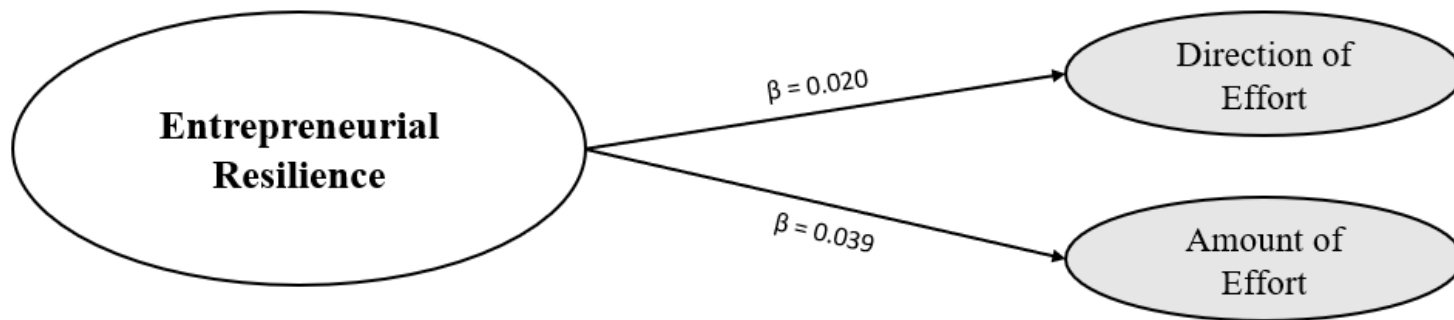
Controls on Mediators (Learning, Value, Expectancy)
 Age: $\beta = -0.074, 0.002, -0.077$
 Gender: $\beta = 0.009, 0.093, 0.066$
 Yrs. Exp.: $\beta = -0.091, -0.077, 0.047$
 Passion: $\beta = 0.178^{**}, 0.135, -0.050$
 ESE: $\beta = 0.001, 0.215^{**}, 0.221^{**}$
 Social Des.: $\beta = -0.013, -0.122, -0.134^*$
 Perf. Exp.: $\beta = -0.010, -0.023, 0.171^*$
 Hours: $\beta = -0.006, 0.311^{***}, 0.093$

Controls on DVs (Direction, Intensity)
 Age: $\beta = -0.041, -0.164$
 Gender: $\beta = 0.064, 0.038$
 Yrs. Exp.: $\beta = 0.036, 0.111$
 Passion: $\beta = 0.076, 0.067$
 ESE: $\beta = -0.011, 0.150$
 Social Des.: $\beta = -0.053, -0.170^*$
 Perf. Exp.: $\beta = 0.066, 0.100$
 Hours: $\beta = 0.017, 0.189^*$

Next, I tried removing each of the mediating variables from the model. In this model, I tested only the direct relationships between entrepreneurial resilience and direction and amount of effort (a composite of intensity and persistence). Again, all VIFs were below 3.0; however, neither of the direct paths in the model were statistically significant, as indicated in Figure 11 below. Furthermore, the R^2 , f^2 , and Q^2 values were inferior to those in the previous models, indicating the lack of predictive power in the reconfigured structural model.

FIGURE 11

Alternative Model 2



Controls on IV (Entrepreneurial Resilience)
Social Des.: $\beta = 0.061$

Controls on DVs (Direction, Intensity)
Age: $\beta = -0.052, -0.155$
Gender: $\beta = 0.066, 0.048$
Yrs. Exp.: $\beta = 0.022, 0.090$
Passion: $\beta = 0.097, 0.099$
ESE: $\beta = -0.013, 0.178^*$
Social Des.: $\beta = -0.055, 0.188^*$
Perf Exp.: $\beta = 0.062, 0.087$
Hours: $\beta = 0.017, 0.251^{**}$

Exploring the data. Given the lack of significant results, I returned to the data to better understand why the majority of the hypothesized relationships in the research model were not supported empirically. One of the key theoretical assumptions that my hypothesizing was based on was the idea that resilient individuals should experience similar levels of negative emotionality when facing a challenge as their less-resilient counterparts. However, existing theory also points to the fact that resilient individuals are adept at drawing on positive emotions in times of challenge. A cursory look at the correlations table showed that the BRS measure was significantly positively correlated with the average daily positive emotions that respondents reported during the study, and significantly negatively related to the average daily negative emotions reported. While the correlation with positive emotions was anticipated, I expected that resilient individuals would not report significantly different levels of negative emotions; that is, I did *not* anticipate a negative correlation.

In order to understand if this anomaly could be at least partially responsible for the results, I constructed an additional, exploratory model to see if positive and negative emotionality could explain respondents' motivation. I created a mediated model in which entrepreneurial resilience was predicted to have a direct effect on the change in participants' direction of effort in week two, as well as their level of effort in week two (modeled as reflective of the two intensity, and one persistence items). I modeled these relationship as being partially mediated by the average positive and negative emotions reported in week one of the study. Positive emotion was modeled as reflective of the respondent's reports of feeling 'good', 'happy', 'joyful', and 'content'. Negative

emotion was modeled as reflective of reports of feeling ‘bad’, ‘sad’, ‘angry’, and ‘afraid’.

I first verified the measurement model using the same steps as before, the results of which are shown in Table 7 below.

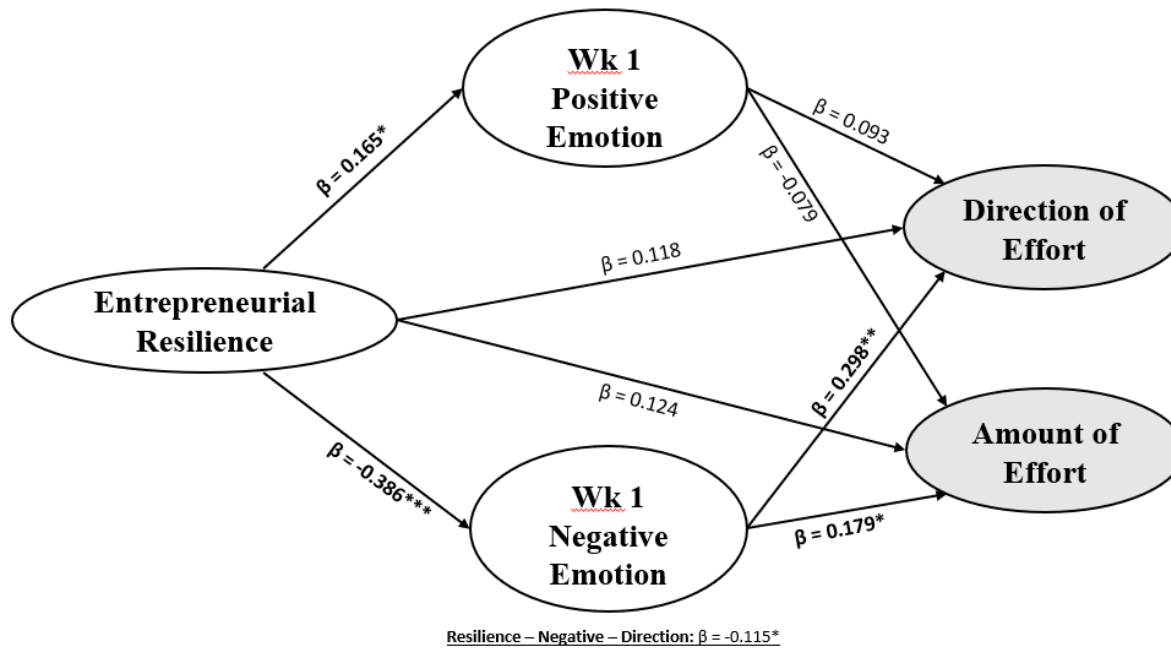
TABLE 7
CCA Results of Exploratory Model

Construct	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
Resilience	BRS-1	0.934	0.752	0.886	0.795
	BRS-3	0.848			
Wk1Positive	Good	0.936	0.911	0.938	0.793
	Happy	0.949			
	Joyful	0.904			
	Content	0.761			
Wk1Negative	Bad	0.886	0.863	0.906	0.708
	Sad	0.892			
	Angry	0.854			
	Afraid	0.724			
Change in Direction	Dir1	0.978	0.928	0.964	0.931
	Dir2	0.952			
Amount of Effort	Intens1	0.942	0.844	0.904	0.759
	Intens2	0.788			
	Pers	0.878			

I then proceeded to test the structural model. All VIFs were below 3.0, indicating that multicollinearity was not an issue in the model. Additionally, the HTMT correlations were below 0.85, thereby indicating discriminant validity of the measurement model (Henseler et al., 2015). As suggested by the initial correlations, entrepreneurial resilience had a significant, positive effect on the level of positive emotions reported in week 1 ($\beta = 0.165$, $p < 0.05$), and a significant negative effect on the level of negative emotions reported in week 1 ($\beta = -0.386$, $p < 0.001$). Furthermore, although positive emotions were not a significant predictor of the motivation constructs, negative emotions were a significant, positive predictor of both the change in the direction ($\beta = 0.298$, $p < 0.01$), and the amount of effort ($\beta = 0.179$, $p < 0.05$), in week 2.

Additionally, resilience had a significant, negative, indirect effect on the change in direction of effort, through its impact on negative emotions ($\beta = -0.115, p < 0.05$). These results are shown in Figure 12 below.

FIGURE 12
Exploratory Model



Controls on IV (Resilience)
Social Desir: $\beta = 0.055$

Controls on Mediators (Positive, Negative)
Age: $\beta = -0.088, -0.218^{**}$
Gender: $\beta = 0.262^{**}, -0.019$
Yrs. Exp.: $\beta = 0.255^{**}, -0.018$
Passion: $\beta = 0.074, 0.121$
ESE: $\beta = 0.087, 0.049$
Social Des.: $\beta = 0.055, -0.112$
Perf Exp.: $\beta = 0.176^{**}, -0.139^*$
Hours: $\beta = -0.019, -0.024$

Controls on DVs (Direction, Effort)
Age: $\beta = 0.015, -0.125$
Gender: $\beta = 0.047, 0.072$
Yrs. Exp.: $\beta = 0.013, 0.115$
Passion: $\beta = 0.042, 0.082$
ESE: $\beta = -0.034, 0.176^*$
Social Des.: $\beta = -0.023, -0.164^*$
Perf Exp.: $\beta = 0.080, 0.126$
Hours: $\beta = 0.016, 0.255^{**}$

Next, I evaluated the predictive strength of the model using the R^2 , f^2 , and Q^2 values. The variables in the model predicted 7.3% of the variation in direction, and 23.0% of the variation in the amount of effort. Although these values are considered small, they represented an improvement upon the R^2 values in alternative models 1 and 2 above. Furthermore, resilience had a small effect on positive emotion ($f^2 = 0.030$), but a medium-sized effect on negative emotion ($f^2 = 0.179$). Negative emotion also had a small effect on direction ($f^2 = 0.059$) and amount of effort ($f^2 = 0.026$) in week 2. Furthermore, the large Q^2 values for negative emotion ($Q^2 = 0.161$), positive emotion ($Q^2 = 0.135$) and amount of effort ($Q^2 = 0.126$) indicated predictive relevance of these variables (Hair et al., 2020). Overall, these results imply that the exploratory model, which utilized positive and negative emotions as mediators between resilience and motivation, had greater predictive power than the models using value, expectancy, and learning as mediators, or the model without mediators.

DISCUSSION

Despite the fact that most of the hypothesized relationships were not supported in this study, several interesting implications still arise. Overall, I do not find evidence that entrepreneurial resilience has a direct impact on motivation in times of adversity, nor a clear indirect effect through learning, value, or expectancy. There are several possible explanations as to why these theorized relationships were not supported by the data.

To begin, one of the key assumptions underlying the relationships in the research model was that resilient individuals should experience greater positive emotions, but roughly the same level of negative emotions as less-resilient individuals when facing a challenge. This theorizing was supported by past studies on general psychological

resilience (Tugade & Fredrickson, 2004). Based on this, I proposed that resilient individuals should be able to utilize those negative emotions to direct their attention to and focus on the challenge (Carver, 2003; Foo et al., 2009), and then draw on positive emotions to energize their efforts to overcome the challenge (Tugade & Fredrickson, 2004, 2007). Yet, while entrepreneurial resilience was associated with higher daily levels of positive emotionality in this study, it was also associated with significantly *lower* levels of negative emotionality. According to the affect-as-information perspective, negative emotions are essential in times of challenge, in that they focus the individual's attention on the issue by signaling that there has been insufficient progress made toward the goal (Foo et al., 2009). If resilient entrepreneurs miss this important signal, they may effectively ignore the problem and devote their time and attention to other areas of their business. In that case, even though their higher positive affectivity may energize them, that energy may be devoted to less-problematic tasks or areas. This could explain why, in this study, resilience was not related to the direction, intensity, and persistence of effort toward the entrepreneur's goal in times of challenge.

This, in turn, highlights an important and often overlooked aspect of emotionality in entrepreneurship; that is, negative emotions. The results of the study imply that negative emotions are particularly important when entrepreneurs encounter a challenge that is contrary to the goals they have set for their venture. In the exploratory model, I found that negative emotions were related to an increased likelihood that the entrepreneur would take a different approach to their goal. This is particularly important when the challenge renders past tactics ineffective. Furthermore, negative emotionality also appeared to motivate entrepreneurs to devote more time and effort to achieving their goal.

This is consistent with the affect-as-information perspective, which predicts that negative emotions arise when insufficient progress is made, pointing to a need to take action to ‘right the ship’. Although positive emotions may energize an individual, the exploratory model suggests that, perhaps the attention-focusing effects of negative emotions are more important to motivation in times of challenge. I theorized that that the broaden-and-build and affect-as-information perspectives would offer complementary indications. However, it seems that the effect of negative emotions predicted in the affect-as-information perspective were more salient in this sample.

Additionally, the lack of connection between resilience and a change in the direction of effort has interesting implications. First, it is notable that the relationship between learning and a change in the direction of effort was positive and significant. However, the connection between resilience and learning from adversity was not near to statistical significance (t-value of 0.128). In this sample, the inability of resilient entrepreneurs to learn from the challenges they encounter, and alter their course of action appropriately, provides support for the qualitative results of Byrne and Shepherd (2015). These researchers noted that the seemingly resilient entrepreneurs who experienced primarily positive emotions after a business failure were unable to learn from the failure. Taken together, the study results lend credence to the picture of resilient entrepreneurs as ‘naïve optimists’ who continue with the same course and force of action when facing a challenge, rather than ‘realistic optimists’ who strategically analyze and adjust their direction and level of effort in times of adversity.

Alternatively, it is possible that the relationship between entrepreneurial resilience and motivation was not significant because the measure of resilience used does not truly

tap the core theoretical construct of resilience. The BRS (and the RS-14) ask individuals to reflect on what they typically do, and in this study, I further instructed respondents to reflect on what they typically do in their work-life as an entrepreneur. Respondents have to report to what extent they usually ‘bounce back quickly after hard times’ and ‘come through difficult times with little trouble’, for example. Such scales actually measure latent resilience capabilities, not resilience in action, nor evidence of resilience outcomes. A more stringent measure of entrepreneurial resilience would require respondents to reflect on specific challenges they have faced in their venture, and to demonstrate that they adapted to and overcame those challenges. A more stringent measure of resilience may have yielded different results.

The relationships that were supported in the data also provide several minor insights. One interesting result from the study was that entrepreneurial resilience was positively related to the expectancy of achieving a goal in times of challenge. This result supports my theorizing that through drawing on positive emotions, resilient entrepreneurs should perceive that the end goal is achievable. Yet, higher expectancy did not necessarily result in greater intensity or persistence of effort toward the goal; that is, the indirect effects of entrepreneurial resilience on intensity and persistence through expectancy were non-significant. One explanation for this is that there is simply a bias towards persistence in a course of action that has already been started. Regardless of an entrepreneur’s resilience, and thereby the value and expectancy of achieving the goal, entrepreneurs are inclined to continue devoting effort to achieving the goal due to social norms and expectations (Holland & Garrett, 2015). Still, higher expectancy that does not

lead to greater effort or a change in the direction of effort again points to the picture of resilient entrepreneurs as naïve optimists.

Limitations and Future Directions

This study has several limitations which present opportunities for future research. First, readers may raise concerns over common method variance and, relatedly, social desirability, as the variables are self-reported by participants. Respondents may feel inclined to show that they will ‘press on’ no matter the adversity because diligence is a laudable characteristic. To mitigate such concerns the independent, mediating, and dependent variables were collected at different times. Also, the short-form of the Marlowe-Crowne social desirability scale (Crowne & Marlowe, 1960) was administered at the outset of the study. This score was then modeled on the independent, mediating, and dependent variables to parcel out social desirability effect (Podsakoff et al., 2003). Still, future studies may be able to overcome the issues inherent in self-reported data by collecting more objective measures of resilience and motivation. This could involve enlisting the help of entrepreneurs’ partners or employees to report on the actual motivated behaviors of the individual.

Next, it is entirely possible that the lack of significant results in this study were driven by poor measurement of the resilience construct. I mentioned the theoretical issues with measuring resilience as a latent capability (or set of capabilities) previously. However, there were also measurement issues with the resilience scales used in the study. The RS-14 scale never reached acceptable parameters in the CCA, and the BRS scale had to be reduced to 2 items (from an initial 6) to meet measurement model standards. Therefore, perhaps the most important opportunity for future research will be to develop

a more precise measure of entrepreneurial resilience. As resilience is thought to be somewhat domain-specific (Maltby et al., 2019), it seems that a tailored measure of entrepreneurial resilience is necessary (Hartmann et al., 2022). Such a measure would need to move beyond asking individuals to report how they ‘typically’ handle challenging situations, to understand how they have actually dealt with and overcome past venturing challenges.

Finally, other limitations of this study are related to the timeframe in which data was collected. It is possible that two weeks is not long enough to truly observe the impact of resilience on motivated goal pursuit. Ideally, persistence would be measured over a longer period of time, even to the attainment or abandonment of the goal. Relatedly, it is possible that many non-resilient entrepreneurs had abandoned their venturing efforts before data collection for the study began. Although I sought to limit this survival bias by sampling ventures that were in the early years of gestation, it may still be that only highly resilient entrepreneurs survived to make it into the sampling frame. Without sufficient variation in the independent variable (i.e., resilience), the effects of resilience on motivation may not have been strong enough to reach statistical significance.

CONCLUSION

In sum, this research sought to examine the impact of resilience on motivation in times of challenge. Although I theorized that the mix of positive and negative emotions experienced by resilient individuals in challenging times would drive them to devote more time and effort to their goal, while considering different means for achieving their goals, the hypothesized relationships were not supported. Additional analyses suggest

that one reason for the lack of results was that resilient entrepreneurs experienced significantly lower levels of negative emotions when encountering a challenge.

According to existing theory, a lack of negative emotions hinders entrepreneurs' ability to attend and devote effort to their goals when facing a challenge. In sum, this research highlights the essential function of negative emotions predicted in the affect-as-information perspective when a venturing challenge arises.

CHAPTER 4

GENERAL DISCUSSION

This project began by noting the importance of motivation and persistence to entrepreneurs' success in achieving the goals they set for their new venture (Renko et al., 2012). However, the preponderance of research on motivation has focused on the benefits of positive emotions in motivating effort in the context of work (Seo et al., 2010, e.g., 2004) and the potential for positive emotions associated with confidence (e.g., Hayward et al., 2010), and entrepreneurial passion (e.g., Cardon & Kirk, 2015; Cardon et al., 2009), to motivate entrepreneurs' efforts and persistence in the face of adversity. Furthermore, research to this point has concentrated on the negative effects of adversity on persistence in entrepreneurship (Holland & Shepherd, 2013) and on the detrimental effect of inconsistent progress toward venturing goals on entrepreneurs' efforts (Uy et al., 2015). However, noting that recent research has highlighted the importance of negative and positive emotions in facilitating entrepreneurial cognition (e.g., Byrne & Shepherd, 2015), and the potential benefits of facing adversity (e.g., Seery et al., 2010), this research project asked, *how can adversity, like negative feedback and goal failure, and the accompanying negative emotional response, motivate entrepreneurs to persist in pursuing their venture goals?*

The results from the two studies conducted here offer several implications for both theory and practice. First, and related to the primary research question posed, this dissertation highlights that, when facing challenges, negative emotions can actually be

advantageous to entrepreneurs' motivation. Specifically, both studies revealed that negative emotions encourage entrepreneurs to consider changing the way that they approach their goal, and also can lead entrepreneurs to devote more effort to achieving their goal, under conditions of adversity. Study 1 demonstrated this effect in a brief, experimentally manipulated goal pursuit scenario, while the exploratory model in Study 2 revealed this effect in a field setting, over a two-week period. Two existing, yet relatively underutilized, theories help to explain these results. First, regulatory focus theory indicates that those who pursue their goals under a prevention focus experience greater negative emotions when they receive negative feedback on their goal progress. These negative emotions serve to heighten vigilance in order to ensure that further failures do not occur (Brockner & Higgins, 2001; Idson & Higgins, 2000). This helps to explain why, in Study 1, the prevention-focused group was more likely to change their direction of effort and devote more effort to their goal after receiving negative feedback. Second, the affect-as-information perspective holds that negative emotions narrow and focus attention on problems and challenges that hinder goal progress (Carver, 2003; Foo et al., 2009). The exploratory model in Study 2 confirmed that entrepreneurs who experienced higher levels of negative emotions over the first week of the study were indeed more likely to change the way they approached their goal, and to devote more effort to that goal as well. In essence, the negative emotions that arise in challenging times may be the silver lining to facing adversity, as they can enhance the motivation to move forward.

Second, this study offers a response to Shepherd's (2015) call for research that seeks to understand how entrepreneurs can maximize the benefits, or mitigate the

disadvantages, of negative emotions experienced in the venturing process. This call points to the importance of emotional intelligence, which includes recognizing and regulating one's emotions effectively (Mayer & Salovey, 1997). Although research has connected emotional intelligence with firm performance (Ingram, Peake, Stewart, & Watson, 2019), more work is needed to understand how entrepreneurs can develop and deploy emotional intelligence capabilities in nascent venturing. This research takes a first step in this direction. These results underscore the potential benefits of negative emotions and adversity, by demonstrating that they can enhance entrepreneurs' motivation to keep working toward their venture goals. Reaching further, the results imply that, when facing challenges, entrepreneurs should not seek to repress or ignore the ensuing negative emotional response. Rather, these negative emotions serve the purpose of focusing attention on the problem. Therefore, at least in the short-term, entrepreneurs should pay attention to their negative emotions and allow them to concentrate their attention on addressing the issue at hand. Furthermore, the results of Study 1 in particular imply that entrepreneurs can best harness the benefits of negative emotions by strategically setting and framing goals for their venture. If entrepreneurs frame the goals they set for their ventures as 'obligations' or 'musts', thereby inducing a prevention focus in goal pursuit, the negative emotions that arise when they run into challenges can spur them forward toward the goal.

Third, this research offers implications for theories that focus on the beneficial effects of positive emotions on motivation. Previous research has shown that resilience, passion, and confidence, which are all associated with positive emotions, can be beneficial in goal pursuit (e.g., Cardon & Kirk, 2015; Chadwick & Raver, 2018;

Hechavarria et al., 2012) . Yet, the results of this study did not find a benefit to positive emotions under conditions of adversity, nor any interaction effects between negative and positive emotions as was hypothesized. Still, I do not suggest that positive emotions are irrelevant in times of challenge. More realistically, a ‘*yes, and*’ approach is needed to wholistically consider the theoretical impact of emotions in adversity. That is, positive emotions associated with resilience, passion, and confidence likely do have a role to play in motivating entrepreneurs...*and* so do negative emotions. The question of when and where each is most beneficial is related to a number of boundary conditions.

For example, the results of this research demonstrated the benefit of negative emotions in the near-term, as the first study lasted only about 30 minutes and the second study only two weeks. However, over the long-term, I suspect that positive emotions are needed to energize entrepreneurs to keep moving forward, in spite of challenges (Fredrickson, 1998, 2001). In other words, focusing on negative emotions over months and years is unlikely to be a successful strategy. Rather, it seems that negative emotions have a role to play in the immediate aftermath of a setback, whereas positive emotions optimize functionality over time. This proposition is consistent with past work that has found that entrepreneurs who initially experienced negative emotions after their business failed, but then reported more positive emotions as time passed, were best able to move forward from that loss (Byrne & Shepherd, 2015). Therefore, theories that focus on positive emotions would do well to also consider the temporal complementarity of negative emotions in motivated goal pursuit. For instance, existing perspectives of psychological resilience highlight that resilient individuals use positive emotions to move forward and overcome negative emotions (Fredrickson et al., 2003; Tugade et al., 2004).

Yet, such theories would also do well to acknowledge that some level of negative emotions are at least required to draw attention to the challenge, so that effort can be mustered to overcome the issue (c.f., Byrne & Shepherd, 2015). If resilient entrepreneurs only use their abilities related to drawing on positive emotions, they may actually be missing out on important informational cues, to their own detriment.

Future research can further explore the boundary conditions related to when and where negative and positive emotions are most beneficial to entrepreneurs. Although I have suggested a temporal element (i.e., negative emotions are beneficial in the short-term aftermath of a goal failure, while positive emotions are beneficial in the long-term), the specifics of this condition require additional exploration. For how long should an entrepreneur initially focus on the negative emotions arising from adversity? Similar to Shepherd's (2003) propositions on oscillating between a loss and restoration orientation in grief recovery, is it necessary to allow oneself to periodically feel the negative emotions arising from a challenge over time, even after positive emotions come into play? It is also likely that the type of task and nature of the challenge make either positive or negative emotions more salient in moving forward and maintaining motivation. For example, might negative emotions be more important in focusing attention when the entrepreneur runs into a novel or a routine challenge? These and many other questions can help researchers to better understand the dual role of positive and negative emotions in entrepreneurial venturing and goal pursuit.

CONCLUSION

Past research has explored the benefits of positive emotions, as well as the pitfalls of both positive and negative emotions (e.g., Baron et al., 2012; Cardon & Kirk, 2015;

Cardon et al., 2009; Foo et al., 2009; Hayward et al., 2010). This research, however, has taken another perspective to examine how negative emotions and the adversity that sparks them may have a supporting role to play in the cognitive processes that spur entrepreneurs on to the accomplishment of their venturing goals. Entrepreneurs will inevitably face successes as well as setbacks, and positive as well as negative emotions in the process of venturing (Foo et al., 2015; Frese, 2009). Therefore, an understanding of how emotions and reactions to negative events can be harnessed and leveraged to motivate entrepreneurs is essential to their eventual success and personal and professional development. This research project has taken just one small step toward better understanding this important phenomenon.

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APPENDIX

Study 1 Constructs and Measures

1. **Prevention Focus** – A self-regulatory system in which individuals focus on the need for security and safety, undertake goals that they feel are obligations or responsibilities, and are more attuned to the presence or absence of negative outcomes (Brockner & Higgins, 2001; Higgins, 1997, 1998).
 - a. **Study 1 Operationalization**
 - i. Consistent with past research, the regulatory focus of participants in Study 1 was induced by framing the goal situation in terms of a loss/ non-loss (e.g., Crowe & Higgins, 1997; Forster et al., 2001; Shah et al., 1998). Specifically, participants were instructed that their goal was to avoid getting a score lower than 7 on their second pitch, or else they would lose the opportunity to advance to the finals.
 - ii. Additionally, participants were asked, “Please think about something you think you must do. In other words, think about a duty or obligation that you currently have. Please list the duty or obligation below” (Freitas & Higgins, 2002).
2. **Promotion Focus** – A self-regulatory system in which individuals focus on the need for growth and development, seek to achieve goals associated with the ideal

self, and are sensitive to the presence or absence of positive outcomes (Brockner & Higgins, 2001; Higgins, 1997, 1998).

a. Study 1 Operationalization

- i. Consistent with past research, the regulatory focus of participants in Study 1 was induced by framing the goal situation in terms of a gain/ non-gain (e.g., Crowe & Higgins, 1997; Forster et al., 2001; Shah et al., 1998). Specifically, participants were told that their goal was to obtain a score of 7 or higher, and gain the chance to advance to the finals.
- ii. Additionally, participants were asked, “Please think about something you ideally would like to do. In other words, think about a hope or aspiration that you currently have. Please list the hope or aspiration below” (Freitas & Higgins, 2002).

- 3. Affect** - Moods and emotions which can be described in terms of subjective pleasantness or unpleasantness, as well as in terms of activation, and are more stable in nature (Baron, 2008; Cardon et al., 2012; Feldman-Barrett et al., 2007; Feldman-Barrett & Russell, 1998; Uy et al., 2015).

a. Study 1 Operationalization

- i. **Scale of Positive and Negative Experience** (Diener et al., 2010) - Participants were asked to indicate how often they generally experience six positive and six negative feelings according to the following scale: 1 = Very rarely or never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very often or always.

ii. Positive feelings:

1. Good
2. Positive
3. Pleasant
4. Joy
5. Happy
6. Contented

iii. Negative feelings:

1. Negative
2. Bad
3. Unpleasant
4. Sad
5. Angry
6. Afraid

iv. This scale was also applied to measure situationally induced emotions, in which case the wording was changed to ask participants “To what extent are you currently experiencing the following feelings”.

- 4. Motivation** – the direction, intensity, and persistence of goal-directed behavior (Campbell & Pritchard, 1976; Kanfer, 1990; Seo et al., 2004).
- 5. Direction of Effort** – A choice between substantially different goal-directed actions (Kanfer, 1990), reflected in the general strategy that an entrepreneur uses to pursue their goal.

a. Study 1 Operationalization (based on pitch elements identified by Parhankangas & Renko, 2017).

i. Respondents were asked to rate to what extent they changed aspects of their second pitch, in an attempt to meet their performance goal, on a scale from 1 to 10 with 1 being “no change at all” and 10 being “changed entirely”.

1. To what extent did you change the language in your second pitch introducing yourself as a founder?
2. To what extent did you change the language in your pitch regarding the features and details of your product or service?
3. To what extent did you change the language in your pitch regarding the market for your product or service?
4. To what extent did you change the language in your second pitch regarding the required funding?
5. To what extent did you change your pitch to make the language more precise?
6. To what extent did you change your pitch to make the language more interactive and engaging?

6. Intensity of Effort – The degree or amplitude of effort that an entrepreneur dedicates to achieving their goal (Campbell & Pritchard, 1976; Kanfer, 1990; Seo et al., 2004).

a. Study 1 Operationalization

- i. On a scale from 1 to 10 (with 1 being ‘not very hard’ and 10 being ‘extremely hard’) how hard did you work on developing this second pitch?
- ii. On a scale from 1 to 10 (with 1 being ‘not very much’ and 10 being ‘a great deal’) how much thought did you give to developing this second pitch?
- iii. On a scale from 1 to 10 (with 1 being ‘no intensity’ and 10 being ‘great intensity’) what level of effort intensity did you devote to developing this second pitch?

7. Persistence in Effort – The duration of effort that an entrepreneur dedicates to achieving their goal (Campbell & Pritchard, 1976; Kanfer, 1990; Seo et al., 2004).

a. Study 1 Operationalization

- i. The number of seconds that the individual spent on the screen developing their first and second pitch was recorded by the Qualtrics system. I then calculated the percent change in time spent developing the second pitch, as compared to the first.

8. Controls

- a. Predominant regulatory focus
- b. This set of questions asks you how frequently specific events actually occur or have occurred in your life. Please indicate your answer to each question by circling the appropriate number below it.

- i. Compared to most people, are you typically unable to get what you want out of life? (1 = never or seldom, 3 = sometimes, 5 = very often)
- ii. Growing up, would you ever “cross the line” by doing things that your parents would not tolerate? (1 = never or seldom, 3 = sometimes, 5 = very often)
- iii. How often have you accomplished things that got you "psyched" to work even harder? (1 = never or seldom, 3 = a few times, 5 = many times)
- iv. Did you get on your parents’ nerves often when you were growing up? (1 = never or seldom, 3 = sometimes, 5 = very often)
- v. How often did you obey rules and regulations that were established by your parents? (1 = never or seldom, 3 = sometimes, 5 = always)
- vi. Growing up, did you ever act in ways that your parents thought were objectionable? (1 = never or seldom, 3 = sometimes, 5 = very often)
- vii. Do you often do well at different things that you try? (1 = never or seldom, 3 = sometimes, 5 = very often)
- viii. Not being careful enough has gotten me into trouble at times. (1 = never or seldom, 3 = sometimes, 5 = very often)

- ix. When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do. (1 = never true, 3 = sometimes true, 5 = very often true)
- x. I feel like I have made progress toward being successful in my life. (1 = certainly false, 5 = certainly true)
- xi. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them. (1 = certainly false, 5 = certainly true)

Per Higgins et al. (2001), promotion and prevention focus are calculated as follows:

$$\text{Promotion} = [(6 - Q1) + Q3 + Q7 + (6 - Q9) + Q10 + (6 - Q11)] / 6$$

$$\text{Prevention} = [(6 - Q2) + (6 - Q4) + Q5 + (6 - Q6) + (6 - Q8)] / 5$$

Per Higgins et al. (2001), The predominant focus is calculated as follows:

$$\text{Predominant Orientation} = \text{Promotion} - \text{Prevention}$$

- c. Respondent's age – Current age in years
- d. Respondent's gender – Options: Male, Female, Other (specify)
- e. Past pitch experience – How many times in the past have you developed a pitch, either written or spoken?
- f. Difference between expected and actual first pitch score – “What do you anticipate your score on the first pitch will be?” Measure included = 3 – Anticipated pitch score

g. Entrepreneurial self-efficacy (from Zhao, Siebert, et al., 2005) –

Respondents were asked to rate their confidence in their ability to perform

several entrepreneurial activities according to the following scale:

- i. 1 = Not at all confident
- ii. 2 = Slightly confident
- iii. 3 = Moderately confident
- iv. 4 = Very confident
- v. 5 = Extremely confident

1. How confident are you in your ability to successfully identify new business opportunities?

2. How confident are you in your ability to create new products or services?

3. How confident are you in your ability to think creatively?

4. How confident are you in your ability to commercialize an idea or new development?

h. Entrepreneurial passion (from Cardon et al., 2013) – Respondents were

asked to indicate to what extent they agree or disagree with a number of

statements about entrepreneurial passion, according to the following scale:

- i. 1 = strongly disagree
- ii. 2 = disagree
- iii. 3 = neither agree nor disagree
- iv. 4 = agree
- v. 5 = strongly agree

1. It is exciting to figure out new ways to solve unmet market needs that can be commercialized.
2. Searching for new ideas for products/services to offer is enjoyable to me.
3. I am motivated to figure out how to make existing products/services better.
4. Scanning the environment for new opportunities really excites me.
5. Inventing new solutions to problems is an important part of who I am.
6. Establishing a new company excites me.
7. Owning my own company energizes me.
8. Nurturing a new business through its emerging success is enjoyable.
9. Being the founder of a business is an important part of who I am.
10. I really like finding the right people to market my product/service to.
11. Assembling the right people to work for my business is exciting.
12. Pushing my employees and myself to make our company better motivates me.

13. Nurturing and growing companies is an important part of who I am.

Study 2 Constructs and Measures

1. Resilience - "...the process by which an actor (i.e., individual, organization, or community) builds and uses its capability endowments to interact with the environment in a way that positively adjusts and maintains functioning prior to, during, and following adversity" (Williams et al., 2017: 742).

2. Entrepreneurial Resilience – The individual-level manifestation of resilience capacities the context of entrepreneurial venturing.

a. Study 2 Operationalization 1

i. **14-item Resilience Scale** (Wagnild & Young, 1993) – Participants were asked to indicate their agreement with a number of statements about themselves *in the context of their work life, as an entrepreneur*. Responses range on a scale from 1 to 7 with 1 being 'disagree' and 7 being 'agree'. Scale not reprinted here per requirements of licensing agreement.

b. Study 2 Operationalization 2

i. **Brief Resilience Scale** (Smith et al., 2008) – Participants were asked to indicate their agreement with six statements about themselves *in the context of their work life, as an entrepreneur*. Responses range on a scale from 1 to 5 with 1 being 'strongly disagree', and 5 being 'strongly agree'.

1. I tend to bounce back quickly after hard times.
2. I have a hard time making it through stressful events (R).
3. It does not take me long to recover from a stressful event.
4. It is hard for me to snap back when something bad happens (R).
5. I usually come through difficult times with little trouble.
6. I tend to take a long time to get over set-backs in my life (R).

In this study, respondents were asked to consider the biggest challenge they were currently facing in their venture, and how that was hindering a goal they had set for their venture. The following questions were asked in reference to that challenge.

3. Learning from Adversity - Also known as double-loop (Argyris & Schön, 1978) or transformative (Merzirow, 1990) learning, in which entrepreneurs' underlying assumptions are changed, and can subsequently inspire new behaviors (Cope, 2005; Fiol & Lyles, 1985).

- a. **Study 2 Operationalization** – Participants were asked to record an audio response to the question “Over the last 24 hours, what new thoughts have you had about the challenge you are facing and the goal you identified on day 1 of the study?”. The audio was transcribed to text using NVivo. The transcribed text was analyzed using the LIWC dictionary for ‘Insight’. LIWC then produces a score that represents the prevalence of key words related to ‘Insight’ in each recording.

4. Goal Value – The subjective value of goal attainment, including the perceived consequences of attaining the goal (Feather, 1992; Vroom, 1964; Weiner, 1985).

- a. **Study 2 Operationalization** - (based on Klein, 1991; Seo et al., 2010) - Respondents were asked, based on how they were feeling that day, to rate how important it is to them to accomplish different degrees of their goal on a scale from 1 to 7 where 1 = not at all important, 2 = low importance, 3 = slightly important, 4 = neutral, 5 = moderately important, 6 = very important, 7 = extremely important
- i. How important to you is it accomplish all of your goal?
 - ii. How important is it to you to accomplish most of your goal (more than 50%)?
 - iii. How important is it to you to accomplish at least some of your goal?

5. Goal Expectancy - An individual's expectation that, should they exert a given level of effort, they can attain their stated goal (Seo et al., 2004; Vroom, 1964).

- a. **Study 2 Operationalization** - (based on Klein, 1991; Seo et al., 2010) - Respondents were asked, based on how they were feeling that day, to rate the likelihood that they would accomplish different degrees of their goal on a scale from 1 to 7 where: 1 = extremely unlikely, 2 = Unlikely, 3 = somewhat unlikely, 4 = neutral, 5 = somewhat likely, 6 = likely, 7 = extremely likely.
- i. How likely do you think it is that you'll be able to accomplish all of your goal?

- ii. How likely do you think it is that you'll be able to accomplish most of your goal (more than 50%)?
- iii. How likely do you think it is that you'll be able to accomplish at least some of your goal?

6. Motivation - The direction, intensity, and persistence of goal-directed efforts (Campbell & Pritchard, 1976; Kanfer, 1990; Seo et al., 2010, 2004).

7. Direction of Effort – A choice between goal-directed actions (Kanfer, 1990) which are influenced by the selection of the goal itself (Parks & Guay, 2009), and the selection of the strategy used to pursue the goal (Earley et al., 1987).

a. Study 2 Operationalization - Respondents were asked to rate the degree to which they had changed the way they approached their goal that day on a scale from 1 to 5 where 1 = not at all, 2 = very little, 3 = somewhat, 4 = a moderate amount, 5 = a great deal:

- i. To what extent did you change the strategy that you used to pursue your goal today?
- ii. To what extent did you try a new approach to achieving your goal today?

8. Intensity of Effort – The degree of effort that an entrepreneur dedicates to achieving their goal (Campbell & Pritchard, 1976; Kanfer, 1990; Seo et al., 2004).

a. Study 2 Operationalization (based on Ke & Zhang, 2009; Foo et al., 2009) - participants were asked to respond to two questions.

- i. The first required a response on a scale from 1 to 5 where 1 = very little, 2 = some, 3 = a moderate amount, 4 = quite a bit, 5 = a lot.

1. When you worked on your goal today, how much effort did you devote to it?

ii. Second, participants were asked, For the following question, please consider how you have pursued your goal over the last 24 hours and assign a percentage representing your degree of focus on a scale from 0% to 100%. When I worked on tasks related to this goal today, I was X% focused. (Fill in the blank - For example 90 = 90% focused; 50 = 50% focused).

9. Persistence in Effort – The duration of effort that an entrepreneur dedicates to achieving their goal (Campbell & Pritchard, 1976; Kanfer, 1990; Seo et al., 2004).

a. Study 2 Operationalization - participants were asked to respond to the following question:

i. How much time (in minutes) did you spend working on tasks related to your goal today? (e.g., 60 = 60 minutes)

10. Positive and negative affect

a. Study 2 Operationalization - Scale of Positive and Negative

Experience (Diener et al., 2010) (Watson et al., 1988) - Participants were asked to report how often they experienced a series of positive and negative emotions each day, according to the following scale: 1 = very rarely or never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often or always.

i. Positive feelings:

1. Good

2. Joy
3. Happy
4. Contented

ii. Negative feelings:

1. Bad
2. Sad
3. Angry
4. Afraid

11. Controls

- a. Respondent's age – Current age in years
- b. Respondent's gender – Options: Male, Female, Other (specify)
- c. Startup Experience – For how many years have you been involved in starting and running a business? Response: Number of years
- d. Weekly work hours – Respondents were asked how many hours they typically spent working on their venture on an average week.
- e. Entrepreneurial self-efficacy (from Zhao, Siebert, et al., 2005) – Respondents were asked to rate their confidence in their ability to perform several entrepreneurial activities according to the following scale:
 - i. 1 = Not at all confident
 - ii. 2 = Slightly confident
 - iii. 3 = Moderately confident
 - iv. 4 = Very confident
 - v. 5 = Extremely confident

1. How confident are you in your ability to successfully identify new business opportunities?
 2. How confident are you in your ability to create new products or services?
 3. How confident are you in your ability to think creatively?
 4. How confident are you in your ability to commercialize an idea or new development?
- f. Entrepreneurial passion (from Cardon et al., 2013) – Respondents were asked to indicate to what extent they agree or disagree with a number of statements about entrepreneurial passion, according to the following scale:
- i. 1 = strongly disagree
 - ii. 2 = disagree
 - iii. 3 = neither agree nor disagree
 - iv. 4 = agree
 - v. 5 = strongly agree
1. It is exciting to figure out new ways to solve unmet market needs that can be commercialized.
 2. Searching for new ideas for products/services to offer is enjoyable to me.
 3. I am motivated to figure out how to make existing products/services better.
 4. Scanning the environment for new opportunities really excites me.

5. Inventing new solutions to problems is an important part of who I am.
6. Establishing a new company excites me.
7. Owning my own company energizes me.
8. Nurturing a new business through its emerging success is enjoyable.
9. Being the founder of a business is an important part of who I am.
10. I really like finding the right people to market my product/service to.
11. Assembling the right people to work for my business is exciting.
12. Pushing my employees and myself to make our company better motivates me.
13. Nurturing and growing companies is an important part of who I am.

vi. Performance expectations – Respondents were asked ‘Compared to your expectations for your venture, how is your venture currently performing?’ Possible responses were coded as follows:

1. 1 = Much worse than my expectations
2. 2 = Somewhat worse than my expectations
3. 3 = Meeting my expectations
4. 4 = Somewhat better than my expectations

5. 5 = Much better than my expectations.

vii. Social desirability – (Crowne & Marlowe, 1960; Reynolds, 1982).

Respondents were asked to indicate whether each of the following statements is true or false of them.

1. It is sometimes hard for me to go on with my work if I am not encouraged.
2. I sometimes feel resentful when I don't get my way.
3. On a few occasions, I have given up doing something because I thought too little of my ability.
4. There have been times when I felt like reveling against people in authority even though I know they were right.
5. No matter who I'm talking to, I'm always a good listener.
6. There have been occasions when I took advantage of someone.
7. I'm always willing to admit it when I make a mistake.
8. I sometimes try to get even rather than forgive and forget.
9. I am always courteous, even to people who are disagreeable.
10. I have never been irked when people expressed ideas very different from my own.
11. There have been times when I was quite jealous of the good fortune of others.

12. I am sometimes irritated by people who ask favors of me.

13. I have never deliberately said something that hurt
someone's feelings.

CURRICULUM VITAE

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EDUCATION

University of Louisville Ph.D. in Entrepreneurship: Expected May, 2022	Louisville, Kentucky
University of Michigan—Flint M.B.A: December, 2015 Concentration: Finance	Flint, Michigan
Central Michigan University B.A.A. in Health Administration: May, 2012 Minors: Business Administration, Leadership, Gerontology	Mount Pleasant, Michigan

DISSERTATION

Title: Finding the Silver Lining: The Role of Affect and Adversity in Entrepreneurial Venturing

Abstract: Motivated goal pursuit is a foundational concept in entrepreneurial venturing. Entrepreneurs set goals for their ventures, and their persistence in pursuing these goals ultimately impacts the success of their venture. Many of the explanations of motivation in goal pursuit have focused on the benefits of steady progress and positive emotions. Specifically, confidence and entrepreneurial passion have been purported to propel entrepreneurs forward in their venturing efforts. However, entrepreneurs inevitably face adversity and setbacks which, in turn, may beget negative emotions. It is yet unclear what role adversity and the ensuing negative emotions may have in motivating entrepreneurs. In order to extend our theoretical understanding of affect and adversity in entrepreneurial venturing, I draw on the existing literature on resilience, self-regulation, and emotion to develop hypotheses related to the effect of these constructs on the three behavioral outcomes of motivation: direction, intensity, and persistence of effort. Ultimately, I propose that negative emotions have an important role to play in responding to and overcoming adversity and that they may function in tandem with positive emotions to spur entrepreneurs forward. This research utilizes both quasi-experimental and survey methodologies.

Committee: Robert Garrett, Chair
Carl Maertz
James O. Fiet
Dean Shepherd

Status: Successfully defended on April 22, 2022

RESEARCH

Interests: Entrepreneurial cognition and emotion; entrepreneurial resilience; entrepreneurial passion; motivation; social entrepreneurship; work-life balance

Refereed Publications:

Zettel, L.A., & Garrett, R.P. (2021) Venture-level outcomes of juggling and struggling. *Journal of Business Venturing Insights*, (15), <https://doi.org/10.1016/j.jbvi.2021.e00225>

Other Peer-Reviewed Publications:

Garrett, R., & **Zettel, L.** (2021, March 25). Entrepreneurial resilience. In *Oxford Research Encyclopedia of Business and Management*. Oxford University Press. doi: <https://doi.org/10.1093/acrefore/9780190224851.013.314>

Working Manuscripts:

Zettel, L., & Garrett, R.P. Entrepreneurial Passion in Peril. Accepted for presentation at Babson College Entrepreneurship Research Conference (June, 2022).

Zettel, L., & Garrett, R.P. A Process Model of Entrepreneurial Resilience. Preparing for submission to *Personnel Psychology*.

Zettel, L., & Garrett, R.P. The Social Entrepreneurial Opportunity: A Pragmatic Approach. Preparing for submission to the *Journal of Social Entrepreneurship*.

Zettel, L. Untangling the Roles of Positive and Negative Affect in Entrepreneurial Motivation.

Bennett, D., **Artz, K.,** & **Zettel, L.** Examining the existence of SBIR mills through the lens of entrepreneurial passion.

Fiet, J., Samuelsson, M., & **Zettel, L.** The Unreasonable Effectiveness of Constrained, Systematic Search and Effectuation.

Zettel, L., Samuelsson, M., & Fiet, J. Connecting Uncertainty, Hybrid Entrepreneurship, and Venture Performance through Real Options Reasoning.

CONFERENCE PRESENTATIONS

Zettel, L., & Garrett, R.P. (2021) Building Entrepreneurial Resilience through Adversity. Paper presented at the annual conference of the Academy of Management.

Zettel, L. (2020) An Alternative Perspective on Social Opportunity Identification and New Social Venture Ideation: A Review, Synthesis, and Extension. Paper presented at the annual conference of the Academy of Management.

Zettel, L., Samuelsson, M., & Fiet, J. (2020) Connecting Uncertainty, Hybrid Entrepreneurship, and Venture Performance through Real Options Reasoning. Paper presented at the annual conference of the Academy of Management.

Atkinson, L. (2019). Venture-Level Outcomes of Juggling and Struggling. Paper presented at the annual conference of the Academy of Management, Boston, MA.

Atkinson, L., & Muhammad, M. (2019). Labor Unions and Entrepreneurship: An Occupational Choice Analysis of the Shifting US Labor Market. Paper presented at the annual conference of the Academy of Management, Boston, MA.

Muhammad, M., **Atkinson, L.,** Bullock, K., & Ahuja, M. (2019) Social Integration and Knowledge Spillover Entrepreneurship. Paper presented at the annual conference of the Academy of Management, Boston, MA (Co-author only).

Atkinson, L. (2018). Resources as the Basis for Sustainable Competitive Advantage in Social Entrepreneurial Ventures. Paper presented at the annual conference of the Academy of Management, Chicago, IL.

CONFERENCE PRESENTATIONS CONTINUED

Fiet, J., Kerrick, S., Kosmidou, V., Atkinson, L., & Naskar, S. (2018). Venture-Specific Knowledge and the Micro Advantages of Repeatedly Successful Entrepreneurs. Paper presented at the annual conference of the Academy of Management, Chicago, IL.

CONSORTIA

Academy of Management Entrepreneurship Division Doctorial Consortium. (July, 2021)

Babson College Entrepreneurship Research Conference Doctorial Consortium. (June, 2020)

- Received the Kauffman Foundation Award for the Best Research Translation

DOCTORAL COURSEWORK AND TRAINING

Course	Instructor
Entrepreneurship from a Strategic Perspective	Robert Garrett
Organizational Behavior	Ryan Quim
Psychology of Entrepreneurship	Dean Shepherd
Sociology of Entrepreneurship	Howard Aldrich
Foundations of Entrepreneurship Research	James O. Fiet
Venture Capital	James O. Fiet
Entrepreneurial Finance	David Dubofsky
Research Design	Manju Ahuja
Advanced Statistics	Cara Cashion
Multivariate Educational Statistics	Namok Choi
Entrepreneurial Discovery	James O. Fiet
Philosophy of Science	Robert Garrett
Quantitative Entrepreneurship Research	Per Davidsson
Advanced Research Methods	Manju Ahuja
Economics of Entrepreneurship	Simon Parker
Graduate Teaching Academy	Michelle Rodems
Advanced Topics in Biostatistics	Subhadip Pal
Family Business	James Chrisman
Social Entrepreneurship	G. Thomas Lumpkin
Current Topics in Entrepreneurship	Scott Shane

TEACHING

University of Louisville, College of Business

ENTR 350—Entrepreneurial Creativity and Innovation, Fall 2019, 2020, 2021, Spring 2020, 2022

ENTR 401—Entrepreneurship I, Spring 2021, 2022

SERVICE

Ad-Hoc Reviewer—Journal of Business Venturing

Ad-Hoc Reviewer—Academy of Management Annual Conference, 2019—2021

Department Representative—University of Louisville Graduate Student Council, 2019—2021

CONSULTING

Amplify Louisville, 2020

EXPERIENCE

Sparrow Health System

IT Business Operations Analyst, June 2016—July 2017

Lansing, Michigan

Canterbury Health Care, Inc.

Administrative Services Manager, May 2012—June 2016

Waterford, Michigan

Central Michigan University

Academic Tutor, September 2009—December 2010

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AWARDS AND HONORS

Student Champion Award Recipient—University of Louisville

Kauffman Foundation Award for the Best Research Translation—2020 BCERC Doctoral Consortium

University Fellowship—School of Interdisciplinary and Graduate Studies—University of Louisville

Leader Advancement Scholarship Recipient—Central Michigan University Leadership Institute

REFERENCES

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