

TITLE PAGE  
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THE ROLE OF COUNTERFACTUAL THINKING  
IN LEARNING FROM ENTREPRENEURIAL FAILURE

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## ABSTRACT OF THE DISSERTATION

### The Role of Counterfactual Thinking In Learning from Entrepreneurial Failure

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Counterfactual thinking (imagining what might have been) has been shown to play an important role in individual learning from failure, though its application to entrepreneurship has been limited and equivocal. This research seeks to better understand the relationship between entrepreneurial failure and counterfactual thinking (CFT), specifically, the likelihood of entrepreneurs to engage in CFT immediately following failure and the type of CFT that is activated under such circumstances. Entrepreneurial failure is distinct from other business failures in its significant psychological, social, and financial implications experienced by the individual. Considering the degree to which emotion permeates the entrepreneurial process and the principles and mechanisms of counterfactual thinking, I investigate the relationship between entrepreneurial failure and counterfactual thinking. I propose that the intense emotion and cognitive biases of the entrepreneur,

when confronted by the unique context of entrepreneurial failure, combine to create a person/situation environment which triggers enactment of CFT. I theorize that entrepreneurs who learn from their failure utilize upward-directed, self-focused CFT to improve future performance. Support for the hypothesis presented is obtained in two vignette studies aimed at determining which type of CFT is enacted by entrepreneurs following entrepreneurial failure. The findings from these studies provide insight into the under-explored relationship between entrepreneurial failure and the entrepreneur who recovers and learns from such failure, and as a result, the entrepreneurial thinking, entrepreneurial learning, and entrepreneurial failure literatures are advanced by this research. Since the implications of upward-directed, self-focused counterfactual thinking for entrepreneurial learning are significant, it will be important to understand under which circumstances this type of CFT is enacted. With this insight, we can both predict future success in entrepreneurs who naturally utilize this type of CFT and train budding entrepreneurs to learn from their failure to ultimately succeed.

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## CHAPTER 1: INTRODUCTION

### 1.1 Personal Story

This researcher's interest in the theories and constructs studied in this dissertation was shaped from personal experience and observation. Growing up, my maternal grandfather was a serial entrepreneur, primarily in the food service industry. I have a very strong recollection of my grandfather owning a business, closing the business, and starting up a new business – at least 2 times in my memory, before his death when I was sixteen years old. My grandmother and mother tell of several other businesses that he started and ran throughout his life. A hard worker, he would be toiling at the business 16-18 hour days, 7 days a week, and as a child, he always seemed highly enthusiastic about his work and his company.

A very strong memory for me, however, was that each time he closed a business, it was due to the company no longer being viable, and even more strongly, I recall that the reasons he would recount for the business closures were external. In one instance, he conveyed that a partner had swindled and lied to him. In another, he insisted it was government restrictions (not inconsequential in Quebec, Canada) which caused his demise. A third time it was the greedy landlord who raised his rents too high to be competitive. My mother tells stories of failed businesses from her childhood, which he told her were due to the banks not providing sufficient financing. I'm not sure why this external attribution for his string of consecutive business failures resonated and stuck with me, but it made an impression on me throughout my life.

My husband of thirteen years is also an entrepreneur. When we met, he sold his business in graphic design and printing at a profit, with the intent of directing these funds into a new venture – a New York City-based real estate development business, for which he had developed a passion and was eager to embark upon. I left my corporate job in order to join him in establishing this new firm, and we worked together to create a business plan, secure investors and a financial lender, find a suitable property, complete a significant amount of legal and administrative processes, and perform the construction, readying the building and its multiple apartments. At the time that we were ready to put the apartments up for sale, it was late 2008, and the stock market and real estate market crash dealt a devastating blow to the business. We lost our entire investment plus a lot more, we suffered a degree of embarrassment with our investors (though we ultimately did fully repay their investments on a multi-year payment plan) and we were forced to enter new careers, which at the time did not tie to our passions.

Despite the clear and causal relationship between the timing of the market crash and our business failure, there was not a moment where my husband blamed the crash for our failure. Whenever we discussed our business failure, whether with just ourselves or with others, he looked solely within himself as to why the business did not succeed. He cited our desire to start too big, rather than buy a smaller, less expensive building. He thought that we should have built more modest apartments, which would be easier to sell in any market, that we should have waited until we had more investors,

rather than putting all of our own money into the project. These are merely a few of the reasons – we discussed so many more of the mistakes we made over the years, and what we should have done differently to avoid our fate. Once it was clear that the company could not continue, my husband went right to work in starting another company. He did so with less than \$5,000 in our account, bills piling up, and with no money at all coming in. He founded a new company in our basement, hiring one of the carpenters working on our house to help. He has built a business that within less than 9 years, has over \$18 Million in revenue and approximately 100 employees.

Obviously these two anecdotal demonstrations of how external versus internal attribution can lead to dramatically different results in subsequent ventures are merely that – anecdotes. However, these two experiences were a large part of my consciousness when I began researching entrepreneurs. I gravitated to the individual entrepreneur, his/her emotions, his/her thoughts, and why one entrepreneur could learn from his mistakes, while another went on to repeat them time and again. This research is a glimpse into how some entrepreneurs may leverage their thoughts and emotion in order to learn from their failures, build a new venture, and go on to future success.

## 1.2 Introduction to the Research

“Effective entrepreneurs are exceptional learners. They learn from what works, and more importantly, from what doesn’t work.” (Smilor, 1997)

Entrepreneurial learning is an emergent field, a recent body of literature, which brings together both organizational learning and entrepreneurship theories. The entrepreneur who has avoided failure during his career is extremely rare, if non-existent. With statistics like three out of four venture capital-backed firms fail (Hindman, 2012) and fifty percent of all businesses fail within five years, per to the US Small Business Administration, entrepreneurs will have inevitably experienced failure with at least one of their firms.

Entrepreneurs cite the ability to learn from their experiences as critical in developing their entrepreneurial capabilities (Rae and Carswell, 2000) and central to the process of entrepreneurial development (Deakins et al, 2000). Learning is pivotal to the entrepreneurial process and valuable skillset of successful entrepreneurs (Smilor, 1997). Entrepreneurship itself has been considered as a process of learning (Minniti and Bygrave, 2001) and so in order to comprehend entrepreneurship, we must first uncover how the entrepreneur learns. In addition, a better understanding of entrepreneurial learning would help in the design of entrepreneurship education and government programs. (Rae and Carswell, 2000).

A current area of study in entrepreneurship is the exploration of one of the means by which entrepreneurs learn, that is, through their individual experience of failure. Entrepreneurial failure can affect the individual entrepreneur financially, socially, and psychologically, generating a sense of loss and grief. How entrepreneurs respond to their failure impacts their motivation, and shapes how they learn, what they learn, and how quickly they

learn from the experience. One aspect of the entrepreneur's response following failure may be his/her engagement in Counterfactual Thinking (CFT). Counterfactual Thinking is the comparison of actual events to alternative versions of the past, imagining "what might have been" in a particular situation, and contemplating alternative outcomes that might have transpired if the person had acted differently or if circumstances were not the same (Roe, 1997). The individual "deconstructs the past to make sense of the present, in preparation for future actions" (Morris and Moore, 2000). CFT can serve as either a means to avoid negative emotions stemming from a failed entrepreneurial venture or as a vehicle to enable learning, depending on which type of CFT is activated (Kahnemann and Miller, 1986).

Counterfactual Thinking is categorized by two different binary elements, which have consequences for the individual based on which type is selected. The first is reference for comparison - upward or downward, which is a descriptor of one's general view of the negative event as it compares to an alternative outcome. Typically, upward-directed thoughts are structured as, "if only a better outcome would have occurred," and downward-directed thoughts appear more as, "at least a worse outcome did not occur." While downward counterfactual thinking (things could have been worse) may offer comfort from the negative affect resulting from a failure (Roe and Hur, 1997), it is not effective for learning from the experience (Morris and Moore, 2000). This is because through downward-directed counterfactuals, individuals avoid the unpleasant feelings, by imagining how much worse things might have been,

rather than considering steps that might have been taken that would have helped avoid that unpleasant event. If one receives a stage II cancer diagnosis, for example, by thinking, “imagine if it had been stage IV, that would have been so much worse,” one feels comfort and reduces negative affect. The second element is the subject of focus - self or other. By focusing externally on elements outside of one’s control, such as a competitor’s marketing efforts derailing one’s sales or another driver’s negligence triggering an accident, it relieves the individual of examining his/her own contribution to that outcome. Conversely, a self-directed CFT such as one’s own lack of knowledge or effort, or mistakes one may have made, focuses the individual engaging in CFT on his/her own role in the outcome.

There are four established types of counterfactual thinking, a combination of the reference for comparison - upward or downward, and the subject of focus - self or other, and each has different emotional consequences. Counterfactual thinking has been shown to be helpful for learning, but only when individuals utilize upward, self-focused comparisons, because it is a more complex and self-critical mode of thinking. Upward, self-focused counterfactual thinking is about what *I* might have done *better* in order to have produced a better outcome than the actual outcome, which then leads to intentions about what to do better next time, and therefore acts as a “cognitive frame for constructing performance-improvement lessons” (Morris and Moore, 2000).

Given that we know that CFT can impact one’s ability to learn from



failure, it is a natural extension to seek to better understand whether or not entrepreneurs engage in CFT following failure, and if so, which kind. We have barely scratched the surface in exploring the relationship between entrepreneurial failure and CFT. CFT was highlighted as an opportunity for research when considering the consequences of business failure, noting that “empirical evidence on the relationship between business failure and CFT is sadly lacking” (Ucbasaran et al, 2013).

This research aims to investigate this relationship, focusing on the propensity of entrepreneurs to activate CFT following failure and when doing so, which kind. The overriding question involves understanding whether the entrepreneur’s traits, the unique entrepreneurial failure situation, or a combination of both determine propensity of entrepreneurs to engage in CFT. I will attempt to resolve the conflicting literature regarding the likelihood of entrepreneurs to engage in CFT, by separating the entrepreneur from his failure experience. Baron found that entrepreneurs are less likely to engage in CFT than non-entrepreneurs (2000); however, I will enhance the methods utilized in obtaining these findings, in order to qualify those results and incorporate theories of entrepreneurial failure and CFT to explain the findings. I will argue that the unique situation of entrepreneurial failure, combined with the individual traits of the entrepreneur drive one to engage in CFT and learn as a result. Additionally, I will tease apart the different types of CFT and attempt to understand whether entrepreneurs are more likely than non-entrepreneurs to engage in certain helpful types of CFT following failure.

Utilizing a vignette study methodology and interviews with entrepreneurs who have experienced business failure, I will seek to better understand the activation process and to determine whether entrepreneurs inherently react differently than non-entrepreneurs when faced with failure situations, enabling them to learn from those experiences.

If we understand the “why” of entrepreneurial thinking, we can influence the “how”; however, we have not been successful in researching how entrepreneurs learn (Krueger, 2003). This dissertation aims to make inroads into this critical area, to explore the “how” of entrepreneurial learning, specifically by examining the role that CFT plays in the entrepreneurial learning process.

## CHAPTER 2: Literature Review

### 2.1 Counterfactual Thinking

#### 2.1.1 Overview and Purpose

"What if?", "If only..." These are the thoughts we ask, when we think about how things might have turned out differently. Counterfactual means contrary to the facts, and counterfactual thinking is a psychological construct, which describes an individual's tendency to create alternatives, which are contrary to what has actually occurred. Following an actual outcome, one modifies a factual prior event and then assesses how that change could have influenced the outcome. Ultimately, one imagines how that outcome could have turned out differently, if the antecedents that led to that event were altered. For example, after being injured in a car crash, a person might engage in a number of counterfactual thoughts that imagine a different result. She might consider if she could have avoided the accident altogether, if she had set out a few minutes earlier. She might also speculate that had she been driving faster, she might have been killed, rather than merely injured.

Although early research on counterfactual thinking approached the phenomena as a negative bias, it is now viewed as a net positive, serving to regulate behavior, despite the negative affect and biases that are intertwined. Counterfactual thoughts have been shown to produce negative emotions such as regret, guilt, and sadness; however, they also produce beneficial effects,

such as relief and comfort, as well as a means to assess who or what should be assigned blame and responsibility (Roese, 1994).

Norm theory is the proposed theoretical basis behind counterfactual thinking (Kahneman and Miller, 1986). Norms involve a comparison between a standard which is anticipated and the actual outcome. When there is a discrepancy between the two, an affective response is elicited, which is influenced by the intensity and the direction of that difference. For example, if a student receives a lower grade on an exam than he expected, negative affect will be evoked, while if an employee receives a higher bonus than expected, positive affect will be evoked. Norm theory's connection, then, to counterfactual thinking involves the degree of ease with which individuals imagine additional, counterfactual alternative outcomes following an exceptional event.

Counterfactual thinking can impact the entrepreneur in both positive and negative ways (Sanchez et al, 2011). While it can induce regret and can reduce self-efficacy, it also can be helpful in forming multiple strategies, enabling one to select the best strategies as a learning from the experience (Roese, 1994). As a heuristic, counterfactual thinking may be useful in developing hypotheses about causal sequences, because it seeks to answer the question of what must change and how, in order to generate a different outcome (Gaglio 2004).

Counterfactual thinking is also related to theories of approach and avoidance behavior, in that when confronted with unpleasant situations,

individuals will behave in ways to avoid experiencing that unpleasantness (Brendl & Higgins, 1996). Counterfactual thoughts in essence then become a virtual avoidance behavior in situations when the unpleasantness cannot actually be avoided. In the aftermath of the event, people focus on avoiding those unpleasant thoughts, by imagining what steps they could have taken which would have allowed them to avoid that situation to begin with. As will be discussed further in forthcoming sections, counterfactual thinking also may serve a purpose when it leads one to have greater awareness of what behaviors and actions are more effective, learning from past mistakes so as to improve one's response to a future circumstance which might occur (Roese, 1994).

#### 2.1.2 Antecedents to CFT and the Role of Affect

Affect, a psychological concept used to describe feeling or emotion, is the primary determining factor for when counterfactual thinking is activated, most frequently being triggered by the experience of negative emotion (Roese, 1994). When one feels bad, they think, "if only..." or "what if..." with those reflections serving as a means to visualize an improved counterfactual world, and in some cases to improve negative affect. Negative affect works as a signal to the individual that there is a problem, which needs to be remedied, and counterfactual thinking is activated in order to deal with that problem. Negative affect, therefore, has been shown to be an antecedent to and an activator of counterfactual thinking, with increasing strength of negative affect leading to greater intensity of counterfactual thinking (Roese, 1997).

Just a small sample of the research that has shown that affect determines counterfactual activation is summarized here, as there is tremendous support for this mechanism. For example, Davis et al. (1995) evaluated the counterfactual thoughts reported in longitudinal studies of people suffering after the death of a child. They discovered that the intensity of negative affect shortly after the devastating event was able to predict how frequently the individual generated counterfactual thoughts over a year later. Namely, the greater the intensity these parents felt the loss soon after their loss, the more frequently they generated counterfactual thoughts at a later date, which in their imaginations negated the death. Roese and Olson (1995) also looked at the valence of the outcome and its impact on counterfactual activation. They did so over several studies, including laboratory studies with manipulated performance feedback, retrospective self-reporting of thoughts, and vignette studies. They found that negative outcomes rather than positive ones were more likely to invoke counterfactual thinking.

In addition to negative affect, there are other determinants of when counterfactual thinking is activated, such as perceived closeness to goal achievement. When one barely misses a goal rather than by a wide margin, counterfactual thoughts are more likely to be elicited (Kahneman & Tversky, 1982, Medvec et al, 1995). Also, expectancy violation can be a trigger for counterfactual thoughts, in that when an outcome was unexpected, one is more likely to generate counterfactual thoughts than when the outcome was expected (Roese & Olson, 1995). the more the event was unexpected, and the

more intense emotional response generated, the greater the number of alternative outcomes produced.

Affect is both a determinant and a consequence of counterfactual thinking. While emotion activates problem-solving resources as a trigger for CFT, it can also be a by-product, whether pleasant or unpleasant, depending on the type of CFT activated, which will be discussed in the next section.

### 2.1.3 Four Types of CFT

As noted earlier, there are two primary ways to segment between types of CFT: upward or downward and self or other. Upward counterfactual thinking focuses on how the situation could have been better, by what could have occurred differently, for example an athlete who loses a match might imagine having won instead. Downward counterfactual thinking focuses on how the situation could have been worse, as when that same athlete might alternatively imagine a poorer performance. The self-versus-other distinction refers to whether the counterfactual is about actions of the self (I should have studied harder for the test) or someone else's actions (The professor should have been more lenient in her grading). Self-directed counterfactuals are more prevalent, as predicted by construal theory, because the event in question is psychologically closer than an event in which others are involved (Scholl and Sassenberg, 2014).

This segmentation leads to four types of counterfactual thinking, a cross between comparison - upward or downward, and the subject of focus - self or

other, and each has different emotional consequences. The direction (upward or downward) and focus of the counterfactual that is generated is determined by factors such as whether or not one will face a similar situation in the future, what type of control one has in the situation, and the valence of the outcome. The counterfactual that is generated will then influence subsequent affective reactions to the situation, depending on the direction of the counterfactual, the extent to which the counterfactual is comparative in nature, and the degree of control which is acquired or present. (McMullen, Markman, Gavanski, 1995). There also seems to be a time-orientation at play, in that upward counterfactuals can be more future-focused, while downward counterfactuals more past-focused, though it is not the main distinction for direction.

The seminal study which evaluated upward and downward counterfactuals was that of the Olympic medalists. This classic study accounts for why bronze medalists often are more satisfied with their outcome than silver medalists. Silver medalists focus on how close they were to achieving the gold medal, thinking with upward counterfactuals about what they could have accomplished. Alternatively, the bronze medalists display downward counterfactuals when they think about how they could have completely missed out on receiving any medal at all (Medvec et al, 1995).

Another example is the study by Medvec and Savitsky (1997) who evaluated the degree of satisfaction students had with the grades they received. They found that how content the student was with his/her grade was tied to whether or not their grade just missed or just made a cutoff for their



grade category. Those who just barely made a B, for example, more often utilized downward counterfactual thinking, and they were more satisfied with their grade. Their thoughts focused on the outcome which could have been worse. By contrast, the students who received a B but were very close to making an A displayed a greater dissatisfaction with their outcome and more often utilized upward counterfactual thinking, focusing on how the outcome could have been better. The downward counterfactuals centered on thought of “at least I..” while the upward counterfactuals dwelled on “I could have...”

Often, regret accompanies upward self-focused counterfactuals, because regret involves self-blame over perceived missed opportunities in decision-making. (Roese, 2005). Conversely, downward counterfactual thinking (things could have been worse) may offer comfort (Roese and Hur, 1997) and generate a positive mood, yet it is not effective for learning from the experience (Morris and Moore, 2000). Through downward-directed counterfactuals, individuals avoid the unpleasant feelings by imagining steps that might have been taken that would have helped avoid that event.

Figure 1: Summary of how the four types of CFT manifest:

		Reference for Comparison	
		Upward	Downward
Subject of Focus	Self	"It could have been better. I should do X to obtain a better result next time"	"It could have been worse, if I had not done X"
	Other	"It should have been better. THEY should do X to obtain a better result next time."	"It could have been worse, if THEY had not done X"

#### 2.1.4 Learning through CFT

Counterfactual thinking has been shown to be helpful for learning, but only when individuals utilize upward, self-focused comparisons, because it is a self-critical, and strategic mode of thinking. This is because upward, self-focused counterfactual thinking is about what *I* might have done *better*, which then leads to intentions about what to do better next time, and therefore acts as a “cognitive frame for constructing performance-improvement lessons” (Morris and Moore, 2000). Counterfactual thinking in this case becomes functional, as it leads to insights into more appropriate actions that would correct the individual's problems. Should similar circumstances arise in the future, the counterfactual reconstructions of the past direct the individual to take those better actions (Roese, 1997).

CFT can be bi-directional in terms of how affect and CFT interact. For example, if the negative affect stemming from an undesired outcome triggers

an upward-directed counterfactual, which then serves to increase that negative affect, which then will further draw the individual into continued counterfactual thinking. Most individuals are able to inhibit the counterfactual-affect cycle before it becomes debilitating, allowing the individual to overcome the negative affect and preserve the benefits from the thought process (Roese 1997). However, those with depression are particularly susceptible to such feedback loops, because they are not as adept at suppressing negative thoughts and breaking free of this cycle (Wenzlaff, Wegner, & Roper, 1988).

Understanding individual differences related to counterfactual generation may have important implications for learning and development (Wong, Haselhuhn, Kray, 2012). Although counterfactual thinking is a common response to negative events, several studies have shown that not everyone engages in it, leading to question which personality traits are more or less likely to be present in individuals who do and do not engage in CFT. Some of these traits include neuroticism and one's propensity to ruminate (Davis et al, 1995), self-esteem (Roese and Olson, 1993), motivational differences such as locus of control (Taylor & Schneider, 1989) and need for cognition (Petty, Cacioppo, & Kao, 1984), dispositional optimism, and coping strategies. Given the emotional nature of coping, an individual's likelihood of engaging in CFT may also be related to specific coping strategies. Carver, Scheier, & Weintraub (1989) found that those who engage in upward counterfactuals also use more problem-solving coping strategies.

For people in general, counterfactual thinking can be a useful tool when experiencing undesirable situations. Entrepreneurs may or may not utilize CFT in response to the specific negative situations they encounter, such as venture failure. The following sections break down entrepreneurial failure and how CFT fits in the learning process following failure.

## 2.2 Entrepreneurship

### 2.2.1 Theoretical framework

The seminal divide in the entrepreneurship literature involves the underlying theories relating to the nature of opportunities and have a significant influence on the underlying assumptions for much entrepreneurial research. Discovery Theory and Creation Theory divide the field of entrepreneurial research into two camps. The implications of the two theories can be seen such that each theory suggests that actions taken along the entrepreneurial process may be more effective, depending upon which context he/she operates. The key differences between the theories can be classified by their underlying assumptions regarding the nature of opportunities, the nature of entrepreneurs, and the nature of decision making context (Alvarez and Barney, 2007). While Discovery Theory supporters (Kirzner, 1973; Shane, 2003) work under the assumption that opportunities exist independent of entrepreneurs, Creation Theory advocates (Venkatraman, 2003; Sarasvathy, 2001) argue that opportunities are fully dependent upon the entrepreneurs and do not exist without the direct actions of the entrepreneur.

Discovery theorists maintain that entrepreneurs differ from non-entrepreneurs in their ability to identify and willingness to capitalize upon the opportunities which present themselves within a particular industry and/or market. In contrast, those who support Creation Theory believe that entrepreneurs are not necessarily different than non-entrepreneurs, but instead they emerge from the opportunity creation process as different (Alvarez and Barney, 2007).

The third key difference between the two theories relates to the decision-making context. Discovery theorists believe that entrepreneurial decision-making is risky; however, because of their belief in the objectivity of opportunities, they assume that, even if quite difficult to do so, information can be gathered to anticipate outcomes and assign probabilities to those outcomes, in order to make decisions. Alternatively, Creation Theory supporters assume that the decision-making context is uncertain, because since opportunities are only in existence once they are created, the information required to determine potential outcomes and their associated probabilities is not attainable. Therefore, decision-making under Creation context becomes more iterative and inductive, rather than analytical and data-driven, in a Discovery-based decision-making context (Alvarez and Barney, 2007).

When an entrepreneur experiences a failure or a significant setback, the theories about how one might perceive those setbacks can be influenced by one theory over another. With a Discovery lens, the entrepreneur might

view learning from failure, for example, differently than one who operates with a Creation lens, such that Creation Theory views learning as a stronger competitive advantage than speed or erecting barriers to entry, for example. This is due to the emergent and iterative nature of opportunities considered by this theory.

Although the key concern of this study is entrepreneurial failure, which by its nature implies that the opportunity (whether discovered or created) upon which the entrepreneur has pursued has either not manifested in a viable long-term business, the resulting learning from the failure is of equal significance. Since Creation Theory places greater emphasis on entrepreneurial learning, and because it generally involves studying individuals who have control to craft something in the world, this research is a better fit within the Creation-based approach to entrepreneurial study.

### 2.2.2 Entrepreneurial Cognition and Emotion

As this research question asks how entrepreneurs react to failure differently, it is important to also understand if and how entrepreneurs generally think differently than non-entrepreneurs when making decisions. Following the limited success achieved in research attempts to distinguish entrepreneurial personality traits from non-entrepreneurs, a significant body of work has focused on exploring and describing the cognitive differences of entrepreneurs. The prevalence of the biases of overconfidence (Oskamp, 1965) and representativeness, the tendency of decision-makers to generalize

from small non-random samples (Tversky and Kahneman 1971) were evaluated in a seminal study by Busenitz and Barney (1997). They were interested in understanding why although entrepreneurs clearly take greater risks than non-entrepreneurs, studies on risk-propensity were inconclusive. They found that it is actually the entrepreneurs' perception of the risk which differs, in that they are more likely to utilize representativeness and overconfidence in their decision-making, and therefore will consider risk differently. In other words, an entrepreneur does not perceive the risk itself with the same weight as the non-entrepreneur, and is therefore more likely to act upon it.

Some additional biases include the present and future-oriented perspective of entrepreneurs (Kahneman and Lovallo, 1993), which leads them to be more optimistic, while ignoring past situations which could help shape their judgements. This is the tendency to believe that things will work out, and is in part caused by the illusion of control bias. Entrepreneurs tend to rely on their illusion of control bias, which aid in their generally more positive expectations about the future. It is this optimism that tends to be greater when individuals have emotional commitment to the results of their work (Russo and Schoemaker, 1992).

There are several aspects of entrepreneurship which lend themselves to reliance on cognitive biases and heuristics in the decision-making process. Along with the risk to resources and reputation, the entrepreneur is faced with an overload of information, a high degree of uncertainty, intense level of

emotion, and significant time pressures, which all suggest that entrepreneurs may be more susceptible to cognitive biases (Baron, 1998).

Entrepreneurs can develop a strong emotional attachment to their ventures (Shepherd and Cardon, 2009), due to financial investment, dedication of time, and personal and social commitments made during the pursuit of the venture. As will be discussed in the next section, a failed venture is likely to be highly distressing to an entrepreneur, who will as a result experience significant negative affect (Shepherd, 2003).

### 2.2.3 Entrepreneurial Failure

The costs associated with entrepreneurial failure can be significant and can be classified into the three major categories including financial, social, and psychological (Ucbasaran et al, 2013). The financial costs of failure can involve a loss or reduction in personal income, which may be exhibited in several forms. Some entrepreneurs incur personal debt that can take years to clear (Cope, 2011). For entrepreneurs with a portfolio of ventures, they may more easily absorb the financial costs associated with a single business failure. Several articles have addressed the financial nature of entrepreneurial failure and the institutional support structures which may assist in minimizing the financial trauma to the entrepreneur. These include examining bankruptcy laws (Fan and White, 2003; Lee, Peng, and Barney, 2007) and effectuation's theory of affordable loss, in which entrepreneurs estimate how much they are



willing to lose in the course of a new venture, and as such could guide their investment decisions (Dew, Read, Sarasvathy, and Wiltbank, 2009).

The social costs tied to entrepreneurial failure relate to both personal and professional relationships. Marriages and close relationships can suffer following failure (Cope, 2011; Singh et al, 2007) and one's social network can be severely impacted and even completely lost (Harris and Sutton, 1986). Following failure, the quality of relationships can be diminished due to the stigma associated with failure (Sutton & Callahan, 1987). This stigma can also lead to discrimination with employment opportunities and access to future resources (Cope, 2011; Shepherd & Haynie, 2011) leading in some cases to social distancing and withdrawal (Cope, 2011).

The key psychological costs associated with entrepreneurial failure fall into two categories, emotional and motivational. Many negative emotions have been tied to business failure, such as anger, blame, guilt, pain, remorse, shame, and humiliation (Cardon & McGrath, 1999; Cope, 2011; Harris & Sutton, 1986; Shepherd, 2003; Singh et al., 2007). The entrepreneur's confidence, self-efficacy, and risk-taking propensity also are negatively impacted following a failure (Cave et al., 2001). What is common through studies on business failure is the concept that the individual senses the loss of something (or someone) important. Grief can act as an overarching concept under which many negative emotions fall, stemming from loss due to failure (Shepherd, 2003). Entrepreneurs can experience grief, along with anxiety and panic attacks, and physiological responses such as exhaustion, high blood

pressure, insomnia, and weight loss (Singh et al, 2007; Cope, 2011). The emotional and physiological impact following business failure can emerge as depression (Singh et al., 2007), which as a result may adversely affect entrepreneurial motivation.

Entrepreneurial motivation is also significantly impacted by entrepreneurial grief. When the entrepreneur experiences failure, it can create a feeling of helplessness and a weakening in one's belief that he/she is able to succeed in specific tasks. These thoughts can ultimately negatively impact performance on these tasks in the future (Cardon & McGrath, 1999; Shepherd, 2003).

### 2.3 Individual Entrepreneurial Learning

Despite its somewhat recent history, the entrepreneurial learning literature consists of a variety of theoretical approaches. One way to categorize these approaches is by the level in which they are interested: the individual entrepreneur or the organization. Those that espouse the individualist approach believe that entrepreneurial learning is something that primarily takes place in the body and the mind of the entrepreneur. The literature that highlights the individual is primarily concerned with the cognitive abilities and the prior experiences of the entrepreneur. It is all about the cognitive mechanisms for identifying entrepreneurial business opportunities and making decisions about those opportunities. They typically define

entrepreneurial learning as a form of management learning (which can be an experiential or cognitive process).

Within the individualistic approach, the majority of the research views entrepreneurial learning as a form of managerial learning, drawing on the established managerial learning theories. A lot of papers in this category are based on Kolb's (1984) experiential learning (Rae and Carswell 2001; Corbett 2005; Politis 2005; Holcomb, Ireland et al. 2009) Kolb's 1984 experiential learning model describes how learning is a process in which knowledge stems from and is continuously modified by experience. Experience is therefore the major source of learning for the entrepreneur (Cope, 2003; Politis, 2005), and various types of experience from which an entrepreneur learns have been described (Rae and Carswell 2001).

While Corbett (2005) matches the entrepreneur with learning styles, Rae (1999), Rae and Carswell (2000, 2001) understand learning from experience as a process of making sense out of experience. For Cope (2003), the process of critical reflection on particular events enables higher-level learning. Therefore, according to the experiential learning approach, entrepreneurial learning is repeating what has been successfully done in the past, avoiding what has failed, and interpreting that experience. Entrepreneurial learning can be observed at a particular stage of the entrepreneurial process, such as when an individual evolves into a 'nascent entrepreneur' (Rae 2000), or when he/she attains a particular level of experience to start a business in the middle of his/her professional career

(Rae 2005).

Besides experiential learning, a few other existing learning theories have been applied to entrepreneurship, primarily drawing a connection between one part of the entrepreneurial process and the learning theory components. Some examples include the 4I framework of organizational learning, (Dutta and Crossan 2005), psychological theories of creativity (Lumpkin and Lichtenstein 2005), and the application of narrative and discourse analysis (Rae 2006). The mechanism of the learning process is also a key interest in this approach. For example, the learning is considered as a self-reinforcing process (Politis, 2005), being affected by the entrepreneur's level of confidence in their prior action (Minniti and Bygrave, 2001).

The second key perspective within the individual approach is in studying the cognitive mechanisms, mostly with respect to identifying opportunities. This approach looks at how the mind works in acquiring and structuring knowledge, and the use of heuristics. For example, Young and Sexton (1997) describe entrepreneurial learning as a mental process of acquiring, storing, and using entrepreneurial knowledge in long-term memory. Personality factors and traits such as motivation and determination can affect this process (Cope and Watts, 2000; Rae and Carswell, 2001). Holcomb et al (2009) argue that heuristics are consequential in explaining variations in learning. In some cases, heuristics can be highly adaptive and beneficial to the accumulation of knowledge. In others, they can distort judgments and bias learning.

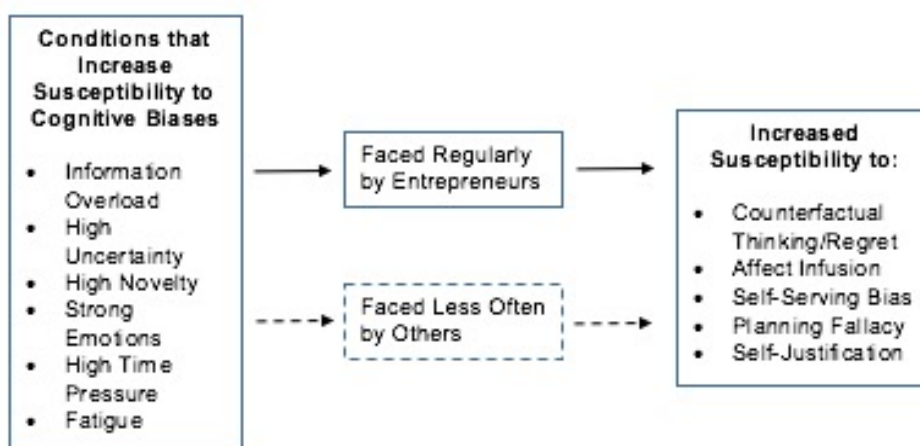
As the ancient Chinese proverb states: Failure is the mother of success. To that end, it is both meaningful and imperative that entrepreneurial failure is carefully studied. Learning from failure, however, has drawbacks, with the obvious one being that learning from failure cannot help to avoid the damage the failure created in the first place. Due to this key limitation of learning from failure, learning from success is equally, and some would argue more meaningful, and often brings more information because of the lack of negative emotion requiring counteraction. This study focuses on learning from failure due to the primary interest of the researcher; however, it is acknowledged that examining how different entrepreneurs learn from success may be a natural next step in the research.

#### 2.4 Counterfactual Thinking and Entrepreneurship

The intersection of entrepreneurship and CFT has been studied to a minimal degree, with fewer than ten total and five empirical papers published on the subject. There is neither agreement about whether entrepreneurs enact CFT more or less than non-entrepreneurs, nor if they do so, what the mechanisms are. Our introduction to CFT in entrepreneurs was by Baron in a theoretical paper (1998). He argued that entrepreneurs would be more likely to engage in CFT than non-entrepreneurs, due to conditions faced by entrepreneurs, which make them more susceptible to cognitive biases, such as uncertainty and failure, which in turn lead them to generate CFT more readily. He focused on the reduction of negative affect that downward

counterfactuals provide, and he argued that the combination of their intense commitment to their venture with significant regret the entrepreneur might feel following a negative outcome such as failure or a missed opportunity would lead them to engage in CFT more often than a non-entrepreneur.

Figure 2 – Reproduced from Baron, 1998: Factors influencing differential susceptibility to cognitive errors by entrepreneurs and others



Baron found support against his initial theory, through a subsequent, highly-cited empirical paper, where he found that entrepreneurs did not experience regret more than their counterparts. He interviewed entrepreneurs and asked them to revisit prior regrets and classify their frequency and intensity (1999). He found that entrepreneurs were actually less likely than non-entrepreneurs to engage in CFT. His revised theory to support these results was that entrepreneurs were more optimistic in general, and that they also tend to think in future terms, such that they would be less likely to reflect on the past. He also suggested that the susceptibility of entrepreneurs to

cognitive errors such as overconfidence and illusion of control also might play a role in reducing reflectivity.

Interestingly, utilizing the same methodology of self-reported rating of past regretful situations, Markman, Baron, and Balkin found that entrepreneurs actually reported more intense counterfactual thoughts than non-entrepreneurs, despite having the same number of regrets (2005). They coupled this with their findings that entrepreneurs scored higher in perseverance and self-efficacy, concluding that these attributes, combined with regretful thinking, led them to overcome setbacks. Clearly, the research to this point is finding more, less, and the same levels of CFT, depending on whether amount or intensity of CFT is being measured.

Gaglio considered how counterfactual thinking influences the process of innovative opportunity identification in a theoretical paper (2004). She looked to distinguish between those who are finders versus non-finders of opportunities, proposing that finders are more alert and therefore enact CFT more frequently than those who are non-finders. She also expands upon Baron's 1999 findings, arguing that Baron only considered automatic counterfactuals, rather than elaborative counterfactuals. Automatic counterfactuals are spontaneous reactions, usually to an undesirable surprise and involve regret, while elaborative counterfactual thinking is intentional, deliberate, and consciously directed (Kahneman, 1995).

Arora, Haynie, and Laurence (2013) appears to be the only other empirical study aside from Baron 1999, and using similar methods of subjects'

rating of their regretful experiences, explored potential dispositional attributes of the entrepreneur, which may moderate the relationship between counterfactual thinking and entrepreneurial self-efficacy (ESE). ESE is “the strength of a person’s belief that he or she is capable of successfully performing the various roles and tasks of entrepreneurship” (Chen et al, 1998). What is important to note about the Arora et al research is that they begin with the assumption that the entrepreneur has engaged in CFT and that the direct relationship between CFT and ESE is negative. This does not take into account whether different types of CFT, such as upward/downward or self/other, have different implications on ESE. That is, when an entrepreneur enacts a downward counterfactual such as, “It could have been worse if I had gone bankrupt, rather than just losing my investment,” he/she might reduce his/her negative affect and preserve ESE. Alternatively, if he/she thinks with an upward counterfactual such as, “If only I had not invested so much of my own money, I would have enough to start a new venture,” his/her affect is degraded along with ESE. Additionally, along with the other research in this area, it looks at regret following an event from the subject’s past, rather than considering the actual enactment of CFT by the entrepreneur in the aftermath of a failure event.

There are certainly other self-regulatory mechanisms which are relevant to studying learning from entrepreneurial failure, including causal attribution (Yamakawa and Cardon, 2015) regret (Roese, 2005), and effectuation (Sarasvathy, 2001) to name just a few. This research focused on CFT



primarily due to the lack of study in this area, along with the equivocal nature of the studies performed to date, personal interest, and the acknowledgement by entrepreneurship scholars of the importance of counterfactual thinking in further understanding entrepreneurial cognition (Shane and Venkataraman, 2000).

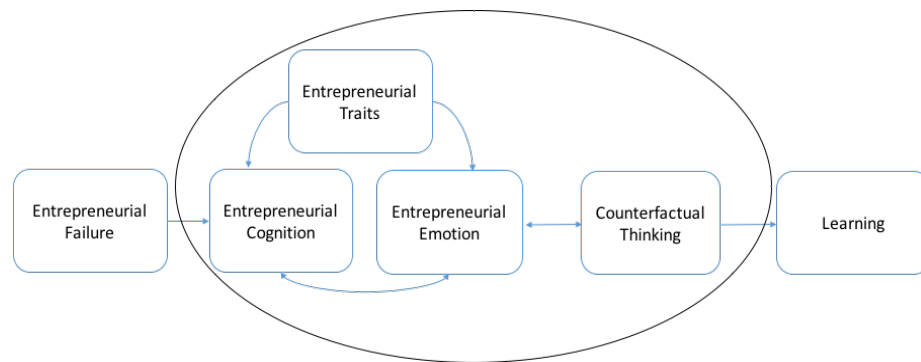
## 2.5 Intersection of Literatures

The constructs reviewed in the above sections intersect in this research in the form of a proposed model in which their interaction drives learning. Figure 3 illustrates the high level process of which counterfactual thinking is a part. Following an entrepreneur's venture failure, a host of negative emotions are unleashed due to the significance and variety of areas which are impacted in the individual's life. These negative emotions interplay with the cognitive biases of the entrepreneur, which may include but are not limited to overconfidence bias and future orientation. The entrepreneur's traits such as individual entrepreneurial orientation or risk propensity can also have a one-directional influence in this process, such that the combination of traits, cognitive biases and emotional valence and direction interact to trigger counterfactual thoughts.

Depending on which counterfactual thought is engaged, the individual might then cycle through an array of emotions as the counterfactual thoughts change. That is, if the negative affect is strong and the individual is engaged in downward-directed counterfactuals, his negative affect might reduce

enough for him to then engage in upward-directed counterfactuals, which then could increase his negative affect. This iterative process of interaction of emotion, traits, and cognitive biases and subsequent counterfactual thinking is represented by the large circle in figure 3, and is the unique contribution of this research.

Figure 3: A proposed model of learning from entrepreneurial failure



## 2.6 Limitations / gaps / opportunities

There are four main areas of opportunity with this research area that expose deficiencies in the current literature and provide justification for this current undertaking, including concerns about methods, lack of consideration of the complexity of CFT, application to entrepreneurial learning rather than other dependent variables such as opportunity identification or entrepreneurial self-efficacy (ESE), and dispensing with the role that time plays in the activation process.

#### a. Concerns about methods

The three empirical papers which examine counterfactual thinking in entrepreneurship (Baron's 1999, Markman et al 2002, and Arora et al 2013) all utilize nearly the identical method in order to measure the enactment of CFT. First, the participants are asked to think back to an unspecified time in their past and to identify up to three regrets that were specifically related to their role as an entrepreneur. They are then tasked with designating on a 7-point Likert scale the frequency, intensity, and degree of unpleasantness for each of those experiences. Per Arora et al (2013) "frequency refers to how often the entrepreneur reflects on his/her regrets, and constructs counterfactual scenarios (from never to all the time). Intensity refers to the depth of feeling with which they reflect on these scenarios. Unpleasantness captures how agreeable (or not) the entrepreneur finds reflecting on these scenarios." Baron's paper measured the number of regrets that the participant could identify (0-3) as an indicator of likelihood to engage in CFT, such that a participant who could recall 3 regret events was categorized as more likely to engage in CFT than one who could only recall 1 regret event.

This methodology is limited for two reasons. First, it requires recalling past events where they experienced regret, rather than necessarily failure experience. Regret in and of itself is not synonymous with failure, as one might regret decisions leading to lost opportunities or minor setbacks (Roese, 2005). The intensity of a failure from an emotional perspective could be significantly greater than a regret for such reasons, and might ultimately lead

to counterfactual thinking more readily. Not being able to recall as many occurrences of regret over an extended past should not necessarily equate to being less likely to engage in CFT following a failure event.

Second, the time span between the regret and the recollection of the regret is inconsistent across participants, because of the open-ended questioning procedure. Baron formed his conclusions utilizing a methodology that did not test reactions following immediate failure, but rather required the subjects to recall events over an unspecified number of years. I suggest that this lag between the failure event and forced introspection of said event could have yielded results that may differ if tied to a failure event. If participants were recalling events from many years prior, presumably their recollection of the event could be diminished, leading to inaccurate classification of frequency, intensity, and unpleasantness.

b. CFT versus regret, and separate types not addressed

The entrepreneurial studies aimed at understanding the frequency and intensity of counterfactual thoughts make the leap that regret is synonymous with CFT, and as such, do not distinguish between different types of CFT. As described earlier, there are multiple ways to break down CFT into sub-classifications, some of which are better for preserving affect, others better for learning. Without breaking down the types of CFT experienced, it is impossible to understand the intended and/or experienced outcomes from enacting CFT, and as a result to theorize why an entrepreneur may be more or

less likely to engage in CFT. If entrepreneurs are more likely to engage in upward-directed CFT than non-entrepreneurs, for example, even if they are less likely to engage in CFT in total, we could better theorize about the role of affect before and after enactment, as well as the entrepreneurial learning process following failure.

c. Application to learning (vs new venture creation or self-efficacy)

The few studies which center on the intersection of CFT and entrepreneurship focus primarily on the likelihood of enactment of CFT and its corresponding intensity. While Gaglio considered how counterfactual thinking might influence the process of innovative opportunity identification in her discussion, the dependent variables of her propositions were still enactment of CFT (2004). She looked to distinguish between those who are finders versus non-finders of opportunities, proposing that finders are more alert and therefore enact CFT more frequently than those who are non-finders. Arora, Haynie, and Laurence (2013), the only other empirical study aside from Baron 1999, using similar methods as Baron, did explore CFT's relationship on entrepreneurial self-efficacy (ESE) by examining dispositional attributes of the entrepreneur as moderators in the relationship between counterfactual thinking and entrepreneurial self-efficacy (ESE).

Within the entrepreneurial learning literature, there is a gap of understanding the role that CFT plays following a failure event. Clearly some entrepreneurs learn better or faster than others following failure, and the

complex and intense nature of such failure has implications beyond affect and motivation to learning in any of the myriad ways it can be measured. Even if one is motivated to start another firm after a failure, if he or she does not learn from the experience, he or she might encounter preventable additional failures. Understanding the role of CFT within the process of entrepreneurial learning can inform best practices to reflection and ultimately learning directly from the failure experience.

d. No longitudinal effect

A final area as yet addressed in the literature involves the role that time plays in the enactment of CFT following failure. Intuitively, we might expect the relationship between time and the level of intensity of negative affect following a failure to be indirect, in that negative affect is most salient in the immediate hours, days, and weeks following the event, ultimately tapering off over time. However, the relationship between time and negative affect could take a different shape, such as direct, with one not fully realizing the full impact of the event until a period of time later, or alternatively it could be a U-shaped or inverted U-shape, or any number of modulating trends, if one's affect shifts as he realizes the different outcomes (psychological, social, financial) over a period of time.

## 2.7 Hypothesis Development

Why do some entrepreneurs learn from failure, while others are unable to do so? Does CFT response type in the immediate aftermath of the failure event contribute to whether or not the entrepreneur will learn? Entrepreneurs experience failure at multiple stages of venture formation and growth, and the process by which they learn from these setbacks is not entirely clear.

Counterfactual thinking, triggered by the negative affect induced by a failure event, can play a role in learning, depending on which type of CFT is activated. Since counterfactual thinking can be a factor in contributing to learning following failure, it is imperative to better understand the relationship between entrepreneurial failure and counterfactual thinking. Does the context of entrepreneurial failure, as opposed to managerial failure, have an impact on which type of CFT is activated? Alternatively, is it something about the entrepreneur him/herself that determines the likelihood and type of CFT triggered? Or is it a combination of both person and context which work together to form a unique pattern of counterfactual engagement following entrepreneurial failure? This research seeks for an understanding of the following key question within the framework of context and/or the individual as the guiding force: How do entrepreneurs enact CFT following failure, in other words, which type of CFT is engaged by the entrepreneur? As discussed above, although the question of an entrepreneur's propensity to engage in CFT in general has been asked and answered in prior research (Baron, 1998, Baron, 1999), the response to an entrepreneurial failure experience has not

been studied, nor has the type of CFT and therefore its connection to learning from failure been explored.

*The argument for context: What is unique about entrepreneurial failure versus regular business failure that might lead to any individual being more likely to engage in a particular type of CFT?* As described earlier, entrepreneurial failure can result in at least three different categories of outcomes: financial, psychological, and social. Because entrepreneurial failure has so many facets, and because one's entire identity may be tied to one's business (Cardon et al, 2005) entrepreneurial failure may be unique to other failure types and would be more likely to induce negative affect and ultimately to greater engagement in CFT. This is similar to the first line of reasoning Baron presented in his theoretical paper (1998), in that under the conditions which entrepreneurs were continuously confronted, they would be more susceptible to cognitive biases, including CFT. This is not to ignore the subsequent work of Baron, but merely to present how his initial argument fits within this theory.

*The argument for traits: What is unique about entrepreneurs that under any failure context, entrepreneurial or otherwise, they would be more or less likely to engage in a particular type CFT?* In 1999, Baron theorized that entrepreneurs might be less likely to engage in reflection on past events and CFT due to their dispositional optimism, future orientation, and susceptibility to cognitive errors such as overconfidence and illusion of control. Markman et al (2005) however, found that when entrepreneurs did engage in CFT, they did



so with greater intensity than non-entrepreneurs, though they did not measure the direction of this intensity (upward or downward, self or other). This leads one to consider if the type of CFT enacted were measured, would they have found entrepreneurs more likely to engage in the type more or less beneficial for learning, regardless of whether or not it is still less overall.

*The argument for the interaction of context and traits: Is it the intersection of the entrepreneur in the context of entrepreneurial failure that drives engagement of CFT?* While entrepreneurs may possess traits which are counter to engagement in CFT, will they react differently than non-entrepreneurs with regard to CFT when experiencing entrepreneurial failure? In other words, does the entrepreneur experience entrepreneurial failure more intensely or through a different lens than a non-entrepreneur, and if so, will it lead them to a) experience greater intensity of negative affect during the CFT experience, and b) engage in a particular type of CFT more readily?

For purposes of this research, an assumption of the enactment of CFT following failure is utilized. As described in the literature review section, the research is equivocal regarding the likelihood of entrepreneurs to engage in CFT, as compared to non-entrepreneurs (Baron, 1998; Baron, 1999; Markman et al, 2005). I propose that although entrepreneurs may be more hardened to failure over all, entrepreneurial passion and attachment to one's venture, along with the unique nature of entrepreneurial failure may cause even greater pain immediately following failure, which would manifest such that entrepreneurs do not differ from non-entrepreneurs in their propensity to engage in CFT overall.

In other words, it is the combination of the traits of the entrepreneur and the entrepreneurial failure context which drives the entrepreneur's propensity to engage in CFT. This has led to an evolution of this research's research question from likelihood to engage in CFT following failure, to likelihood to engage in the specific type of CFT beneficial to learning (upward-directed/self-focused).

The four types of counterfactual thinking discussed earlier in this dissertation have different impacts on emotion and on learning. To briefly review, while downward counterfactual thinking may offer comfort (Roese and Hur, 1997) it is not as effective for learning from the experience as is upward/self CFT (Morris and Moore, 2000). Upward self-focused counterfactual thinking can be a valuable tool for entrepreneurial learning from failure, yet it leads to increased negative affect (Roese 1997) as well as feelings of dissatisfaction, envy, and regret (Medvec, Madey, and Gilovich, 1995).

This research assumes that the entrepreneur will engage in CFT immediately following failure and moves beyond general engagement to exploring which type he/she might engage to induce learning. Because negative affect reduces self-efficacy (Bandura, 1982) and entrepreneurial self-efficacy is linked to intentions to start new ventures (Chen et al, 1998) it is possible that unsuccessful serial entrepreneurs might naturally gravitate toward downward-directed, other-focused thinking. If not, they might not enter into the subsequent venture, as their ESE would diminish their motivation to

try again. However, because we know that upward/self CFT is the type most beneficial for learning (Morris and Moore, 2000), I suggest that for successful serial entrepreneurs, they are able to set aside their negative affect long enough to utilize this type more frequently than other types, in order to reflect and learn from the experience and apply it to subsequent ventures. In other words, successful serial entrepreneurs are by definition able to learn following a venture failure, and the hypothesis is that this learning is at least in part due to the engagement in self-focused upward counterfactuals.

H1: Successful entrepreneurs are more likely to learn following venture failure after they respond with self-focused upward counterfactual thinking (CFT) than after they respond with other types of CFT.

## CHAPTER 3: EMPIRICAL STUDIES

### 3.1 Overview of Study Design

Two studies, along with exploratory interviews were conducted in order to test the proposed hypothesis. The first study, a vignette survey study, examined the prevalence of CFT among entrepreneurs, and when enacted, which type is utilized more often among those entrepreneurs who have failed and subsequently succeeded. The second and main study more closely examines entrepreneurs who have failed and subsequently succeeded. These individuals responded to vignettes with open-ended questioning aimed at eliciting a CFT response, in order to capture which type was enacted by the participant.

### 3.2 Pre-Study: Interviews

#### 3.2.1 Pre-Study Interview Protocol

Prior to the main studies, a series of semi-structured interviews were conducted with entrepreneurs who have experienced business failure at some point in their entrepreneurial career, yet have gone on to succeed in subsequent ventures. The participants were asked to recall their personal experiences during the failure event, focusing on the consequences that accompanied that event. The full set of interview questions can be found in Appendix A. The financial, social, and emotional losses were highlighted through questioning aimed at eliciting such responses, followed by a series of

queries into the thoughts of the entrepreneur tied to his or her responses. The aim was to elicit the personal experiences of activating CFT following a loss, and what part that CFT enactment played in their recovery and subsequent creation of a new business. In addition, the thoughts offered by the entrepreneur during his/her interview regarding the consequences of the failure event were captured and coded according to whether they could be considered counterfactual thoughts, and if so, which type. For example, any thought beginning with “if only,” “I wish”, “I/they should have,” or “at least” could be considered a counterfactual thought.

The main objective to conducting the interviews was to practice and refine the researcher’s interview approach and specific wording of questions, which subsequently were utilized in the two main studies. Additionally, they informed the two studies by providing insight into the types of losses suffered, the salience of certain aspects of the aftermath, and provided key words which lent credibility to the vignette and elicited the negative affect. For example, one of the participants expressed a painful recollection of the humiliation he felt at what he determined was a public display of his failure. This public nature of failure was incorporated into the vignette with the addition of the Wall Street Journal articles.

### 3.2.2. Summary of Interviews

Five interviews were conducted with serial entrepreneurs, defined for purposes of this study as individuals who have founded at least two firms. Of

interest were entrepreneurs who have experienced a failure in at least one of their ventures, with failure for this purpose defined as a forced closure of the business. The five subjects are described as follows:

- 1) A male owner/founder of a successful commercial construction company, who previously experienced a loss with his real estate development company. This subject described the intense sense of loss, coupled with his identity as a successful business owner shifting to questioning his own merit. He insisted that although his failure coincided with the real estate market crash of 2008, he was responsible for the level of failure due to lack of planning and poor decision-making in key areas, such as size and scale of the project undertaken. He did not spend too much time in self-reflection at the time, because he was distracted by fear and working toward building a new business. He chose a new but related industry, where he really had no experience, but where he thought the barrier to entry was low enough that he could learn as he went. It is now a very successful construction firm, where he tries to learn on a daily basis in various ways and continuously looks inward to find that learning.
- 2) A male owner/founder of a successful photography business, who previously experienced a loss with his art consulting service. This subject had owned a business with his wife, which they began based on his love of art and previous connections to the art world. Although they believed their idea for a novel way to bring artists and buyers together would be successful, ultimately they encountered hurdles within the traditional

industry and had to close. They both then went on to pursue their individual passions, with this subject starting a photography business, which is now hugely successful. He attributes his failure to his overly optimistic view of the market, a reliance on his connections but challenging efforts to grow his network, and timing of his venture being too early. He said that at the time, he didn't dwell too much on the failure, because he was very eager to begin his photography business, plus he felt that because it was a "long time coming" he had plenty of time to prepare for the eventual failure.

- 3) A female owner/founder of a successful café, who previously experienced a loss with her prior food service business. This entrepreneur had owned a café and food goods retail store in a small town in New Jersey, which she closed after nearly fifteen years in business. Her former landlord kept raising her rent due to the town and neighborhood's improvements, and she was unable to keep up financially with the increases. She said she was forced to close, and it was extremely hard for her emotionally and financially. She said she couldn't even think about another business for over a year, because she was stuck reliving what else she could have done to stay afloat. She had anger toward her landlord as well, and she said she really vacillated between self and other attributions for the failure. After about two years, she opened a new bakery and then a subsequent one five years after that. While she said it was extremely hard financially to restart, she feels confident that what she learned about what keeps

customers coming back, and how to structure her long-term leases will keep her afloat as long as she is happy with what she is doing.

- 4) A female owner/founder of a successful Human Resources consulting firm, who previously experienced a loss with her prior HR-related venture. This entrepreneur had a successful career in the corporate world for over twenty years, as an HR executive. After her last role ended abruptly due to friction with the CEO, she decided to venture out on her own, and she partnered with a colleague to set up a consulting firm. She believed she needed the partner to aid in client acquisition, as her network was limited and her partner's was seemingly greater. She indicated that while initially business was booming, she was spending too much time with clients and not enough time doing business development, and her partner was losing interest in the business and not pulling her weight. She said that initially she spent a lot of time arguing and being angry and frustrated with her partner, blaming her for her lagging results, but ultimately realized that if she was going to be successful, she'd have to take responsibility for the actions she was and wasn't taking. Ultimately they closed the business because neither side was able to buy the other out, and it was the only way for her to move forward. She still felt a sense of failure and said she was very depressed during the time that the business was dissolving. She soon started a new consulting company, with a new name and branding, and which she runs solo. She is still building her clientele but reports that



her earnings are strong and she is very satisfied with her progress and is optimistic about growth potential.

- 5) A male owner/founder of a successful television production company, who previously experienced a loss as the owner of another television production company. This entrepreneur uprooted his family's life and moved across the country after the failure of his television production company. After many years working for network television companies as a producer, he ventured on his own in California and began developing his own concepts and shows and selling them to the networks he used to work for. He started with confidence, because he already had ideas and contracts in hand; however, he soon found that he was working around the clock under intensely pressure-filled situations, which he felt stunted his creativity. He said there was so much panic on a daily basis that he couldn't keep the business afloat, and he was dealing with employee issues that he felt unequipped to handle. Ultimately he shut down the business and returned to a "traditional" producer job with a company in Tennessee, and then moved to New York with a promotion. After getting to New York he made new connections and rebuilt old connections and decided to venture out on his own again, but this time with the help of partners. He believes that he learned a great deal from his first venture experience, which he says he works to change with this one, primarily in the division of labor among his partners, so he can focus on his areas of strength and reduce stress.

TABLE 1: Interview Demographic Information

Demographic	Number of Participants
Age:	
41-50	4
51-60	1
Gender:	
Male	3
Female	2
Entrepreneurial Parent(s)	
Yes	2
No	3
Education Level	
Undergraduate Degree	2
Post-Graduate Degree	3
Years as an Entrepreneur	
3-5	1
6-10	2
10-20	1
more than 20	1
Ethnicity	
White	4
Hispanic	1

The format of the interviews followed a semi-structured approach, which means that a framework of themes and questions are prepared, though the specific questions asked varied from one subject to another. Semi-structured interviews are typically utilized in explanatory studies, and are beneficial because while there is the ability to prepare in advance, there is still freedom for the interviewees to express their views in their own terms (Harrell & Bradley, 2009). The interviews were recorded, transcribed, and informed the vignette study by generating insight into the emotional triggers, which can be integrated into the vignette study language. Examples of such language include, "It was devastating", "It was hard on my family, who had to endure the strain," and, "I was depressed."

The participants were asked to recall a situation in which they experienced a failure, relating to their story of the failure experience. Sample questions, which are included in Appendix A attempted to elicit information about the categories of failures they endured (psychological, social, financial) as well as the intensity of each type of consequence. Additionally, the interviewees were asked what they believed was the cause of their failure, in order to guide the discussion toward the counterfactuals which may have been engaged. A dialogue about if and how they utilized the counterfactuals to their advantage or disadvantage, as well as how long they stayed in the CFT mindset ensued.

All of the five entrepreneurs interviewed had experienced failure and subsequently went on to create a new successful business. Through eliciting their stories and asking probing questions about their emotions and how they imagined things may have been different, nine counterfactual expressions were recorded. There were an additional three statements, which although regret was expressed, they were not fully counterfactual, in that they did not generate an alternative outcome.

Of the nine counterfactuals, six were self-directed upward counterfactuals, two were self-directed downward counterfactuals, and one was an other-directed downward counterfactual. Although clearly not sufficient data to make a conclusion, anecdotally it appears as though this group of entrepreneurs who learned from their prior failures utilized the type of CFT useful for learning as part of their recovery process.

Table 2: List of counterfactuals expressed in the interviews

Counterfactual Quote	Counterfactual Type
"Maybe if I hadn't confronted him about that, we'd still be partners"	Upward/Self
"I'm not sure what I could have done differently. I think maybe if I hadn't jumped in so fast, listened to my gut about those guys, I'd have avoided all that."	Upward/Self
"My clients wanted so much of my time, all the time. If I had been better able to manage their demands and still keep my sanity, I'd have done a better job. I'd probably still have that business now, I guess."	Upward/Self
"I think about it all the time. I would have saved so much heartache and embarrassment...the embarrassment was the key for me...well, I'd at least have not had such a hard time, whether or not I'd be where I am now. I do imagine an easier way."	Upward/Self
"I don't like 'if only's'. What's the point? I try to stay focused on the present. Everything in life happens for a reason. My loss before helped me to learn for this one. But if I had to wonder about it, maybe I'd imagine how much money I'd have to put into the new business. It was hard to start with nothing."	Upward/Self
It was totally my fault. I shouldn't have made such big, luxury apartments. I'd definitely have survived the crash if I'd built studios instead. At least we didn't go bankrupt, that was a huge deal."	Upward/Self and Downward/Self
I do imagine a different ending, for sure. It was really bad, I thought maybe I was depressed. A friend of mine went through that. He could barely get out of bed for months. I'm grateful it didn't get to that level.	Downward/Self
"It was so hard on my family. They were supportive, but it was definitely hard on them. I can't believe he didn't divorce me after all of that."	Downward/Other

### 3.3 Vignette Study

#### 3.3.1 The Vignette Survey Design

A vignette study methodology was selected as the primary study methodology to test the hypothesis. Vignette studies use short descriptions of situations (vignettes) which are carefully constructed and are realistic in nature, which are shown to the respondents within surveys in order to elicit their reactions and judgments about these scenarios. This method is selected for this research, because it is useful for manipulating and controlling independent variables, in order to assess dependent variables such as intentions, attitudes, and behaviors. A quantitative vignette study is made up of two parts: a vignette experiment at the core, and a traditional survey, which serves to measure the characteristics of the participants. The guidelines with respect to vignette creation, according to Neff (1979) and Finch (1987) include the following:

- Vignettes should appear plausible and real to participants
- The stories presented in the vignettes should be readily understood and not overly complex
- Vignettes should avoid depicting eccentric characters and disastrous events, and should instead reflect mundane occurrences
- Vignettes should contain sufficient context for respondents to understand the situation being depicted, but be vague enough to require participants to provide additional factors which influence their decisions.
- Participant's ability to engage with the story may be enhanced if they have personal experience of the situation described.

Most vignette-based studies utilize the constant-variable-value vignette (CVVV) method, where all respondents read and respond to identical vignettes (Cavanagh and Fritzsche, 1985). Some of the challenges of multiple vignettes include a carry-over effect from one vignette to another (Sniderman and Grob, 1996), and longer vignettes may be answered carelessly when participants lose interest over time (Nosanchuk, 1972). In this study, a single vignette was utilized, as it was found in a study by Wason, Palonsky, and Hyman (2002) that 38% of vignette studies they compiled to that time only included one vignette.

In this case, the same vignette was presented to all of the participants, regardless of their source or their demographic. The vignette tells the story of an entrepreneur who founds and owns a large software company, which he built himself from the ground up. After a few years of tremendous effort, his product takes off, and he achieves financial success and recognition. After a competitor enters the market, the entrepreneur can no longer effectively compete, nor can he adapt fast enough to survive. He then is forced to close the firm and suffer financial loss and public humiliation. See Appendix B and D for the vignette that was presented to participants.

### 3.3.2 The Two Participant Groups

#### 3.3.2.1 Amazon Mechanical Turk Participants:

An online study was conducted first, via Amazon Mechanical Turk (MTurk). The purpose of this study was in part to test out the vignette and whether the

consequences described in the vignettes were recognized by the participants. Additionally, it served as additional data to examine differences between entrepreneurs and non-entrepreneurs regarding type of CFT enacted. For reviews of the suitability of MTurk for academic research, see Buhrmester, Kwang, & Gosling, 2011; Paolacci, Chandler & Ipeirotis, 2010.

A test (35 participants) was conducted first to ensure that the wording of the vignette and questions were understandable, and that there was a reasonable distribution of responses for the dependent variable of CFT type. If only one or two types were selected by the participants, it could be that the responses were too obvious or leading. The distribution of responses were 15 Up/Self (42.8%), 5 Up/Other (14.3%), 9 Down/Self (25.7%), and 6 Down/Other (17.1%), indicating that while Up/Self response was chosen most frequently, there were sufficient responses from the other selections that each response was considered plausible.

Following the test, the survey was launched, yielding 230 responses. Each participant was paid \$0.25 (25 cents) for their participation, with the average time to take the survey at 5.25 minutes. Of the 230 participants, 124 were male, 98 female, and 8 did not specify a gender. 115 identified as White, 71 as Asian or Pacific Islander, 13 as Hispanic or Latino, 13 as Black or African American, and 10 as Native American or American Indian. 103 participants were 22-30, 70 were 31-40, 25 were 41-50, 13 were 51-60, 6 were over 60, and 5 were under 21. 100 of the participants have an undergraduate degree, 58 have some college, 50 are post-graduate, and 14 have completed high

school only. With respect to entrepreneurial background, 97 indicated that they were not entrepreneurs, with 133 identifying as some form of entrepreneur. Of these 133, 74 were on their first venture, while 59 identified as serial entrepreneurs. Of these 59 serial entrepreneurs, 45 indicated that they had not suffered a venture failure, with 14 indicating that they had.

The Amazon MTurk participants were first presented with the vignette, followed by a series of questions aimed at eliciting a counterfactual response. First they were asked to select as many causes for the downfall of the firm as they believed applied. The randomly-sorted list of choices ranged from individual errors, employee missteps, and environmental factors. The purpose of this line of questioning was multiple. First, the provided list served to counteract any possibility that the vignette was biased toward a particular CFT response, by forcing the participant to read through a list of potential causes that could lead them to select a CFT type. Second, it magnified the participant's emotional response, in order to encourage their eliciting of a CFT response. Finally, it allowed for the opportunity to match what the participant felt was the cause of the failure to the type of CFT response, i.e. the selection of more personal causes should be correlated to a self-directed counterfactual. Some examples of the potential consequences were the following:

- a. Financial: loss of investment, loss of savings, impact on personal credit, employees losing their jobs
- b. Psychological: feeling of mourning, feeling depressed, diminished self-esteem
- c. Social: diminished respect of family and friends, loss of industry contacts, not accepted in prior clubs, memberships



The participants were then asked to identify what emotions the vignette subject was experiencing, again with the purpose of tying their response to the CFT type and further drawing them into the vignette. The emotions selected were meant to represent a range of potential positive and negative emotions and were not an exhaustive list of every emotion possible. The critical question of what the subject was thinking was asked, which was coded for which CFT type response was enacted. Below are the four choices offered in random order to the question of what Joe was thinking:

- If only I had not expanded into so many markets, I would have been able to revamp my product and would still be running a successful company (self/up)
- If only the bank would have offered more financing, I would have been able to invest in the product and turn the company around (other/up)
- Good thing that I shut the company down when I did, otherwise I would now have so much more debt and my reputation would never recover (self/down)
- At least the banks were willing to help me reduce my debt, otherwise I would be completely ruined financially (other/down)

The participant was then asked whether or not they anticipated that the next

venture of the subject would be more successful, less successful, or the same level of success (in random order). This question was aimed at measuring the correlation between CFT type and future learnings, at least from the perspective of whether the participant believed that there could be learnings drawn from the failure experience.

All of the questions stemming from the vignette, such as causal factors, emotion, counterfactual thinking choice, and resulting learning conclusion contained choices which were ordered randomly, in order to ensure that the results were not confounded by the order of the choices. Following the vignette and the questions that were based on its reading, the participants were then given two entrepreneurial scales to complete: individual entrepreneurial orientation (IEO) and entrepreneurial self-efficacy (ESE), as well as a series of demographic questions, including age, gender, nationality/race, and highest level of education.

#### 3.3.2.2 Entrepreneur Pioneers Initiatives Group

The entrepreneur participant group was sourced from the “Entrepreneur Pioneers Initiatives Group” (EPI) which is an organization of first generation entrepreneurs who have been in business at least three years and have employees. There are approximately 250 members of this group, all of whom were sent an email by the program director requesting their participation in a study regarding entrepreneurial emotion. They were provided a link to an

online survey on Qualtrics, and If they took the survey, they received a \$5.00 gift card to Starbucks Coffee for their participation.

The aim of this first survey was to identify which respondents met the criteria to be a study participant. The intent was to find solely those entrepreneurs who had experienced a failure in a prior venture, yet went on to create a successful venture afterward. Of the approximately 250 members of this group who were sent the initial survey, 110 responded. This response rate is high for surveys, but it was not unexpected, due to the process taken before sending out the survey. First the board of directors was met with in order to gain their support and buy-in of the research and the approach to be taken with its members. Second, the email with the survey request was sent by the director of the program, who has the respect and admiration of its members. Of the 110 who responded to the survey, 54 qualified to be part of the study, because they indicated that at least one of their prior ventures ended prematurely with financial debt, but they currently are running a new company which is viable.

This subject pool intentionally differs from the MTurk participants, because it was unclear the amount of entrepreneurs who would fall into each of the entrepreneurial type categories, and specifically the expectation that there would be very few who fell into the category of entrepreneur who would succeed following failure. The EPI group study is both the primary study of interest, requiring exponentially more effort and time in gathering the data, and with an initial subject pool that contained only entrepreneurs, the likelihood of

entrepreneurs who fell into the category of interest was high, and indeed manifested as such.

The qualification survey not only included questions about their entrepreneurial history, but also included all of the demographic and entrepreneurial scale questions that were part of the Amazon MTurk study described above. The reason for including them at this point was to make the phone interviews shorter and more streamlined to the specific CFT questions that were of interest, and also to gather the data for those individuals who would not be called because they didn't qualify. This data could potentially be of use in a future study.

Each of the 54 qualified individuals were called, with 49 who were then able to be reached by phone and who agreed to be interviewed and recorded. Of the 49 called, 20 were male and 29 were female. The distribution of nationalities were 20 Caucasian, 11 African American, 8 Hispanic, 3 Asia-Pacific, 4 Native American/Pacific Islander, and 3 other. The interviews lasted anywhere from 5 minutes to 20 minutes, depending on the interest of the participant to tell their story and to elaborate on their responses.

The format of the phone interviews was that first an introduction was made, as well as a reminder of their having taken the qualification survey and providing their contact information for a follow-up call. They were asked if they were willing to be recorded and put on speaker phone, and after they agreed, they were put on speaker phone and recorded. Each conversation was recorded on a separate file, which was saved and later transcribed. First the

participant was told that they would be read a story about an entrepreneur, and as they listened they were to put themselves in the main character's position. They were then read the vignette in its entirety, which takes approximately 60 to 90 seconds to be read aloud. They were then asked a series of open-ended follow-up questions about the vignette. These questions have the same purpose as the questions asked in the MTurk participant group, and only differed in that they were open-ended, rather than multiple choice. First, they were asked what they thought went wrong, followed by what they believed the subject was feeling, and finally what they thought the subject was thinking. They were then read the same four choices as the MTurk participants listed above and asked to select the one which best fit. Their final question was whether they believed the subject would achieve more, less, or the same level of success in his future endeavor.

For some of the participants, depending on their level of engagement and interest, they were then asked to recall their own personal experiences relating to their entrepreneurial failure and subsequent recovery. Only 6 participants chose to do so.

### 3.3.3 Measurements

#### 3.3.3.1 Entrepreneur Type

The first key measurement was that of classification of the type of entrepreneur. This was critical, because a consistent metric across all subject groups was required. See Appendix C for the specific questions asked.

Subjects were grouped into five sets, based on their responses to questions regarding their entrepreneurial background. They were first asked to classify their entrepreneurial situation, ranging from having founded several businesses, to being in the process of writing a business plan, to considering themselves as “entrepreneurial.” For the MTurk participants, they were also provided an option of not being an entrepreneur at all, but for the EPI participants, the assumption that they at least consider themselves as entrepreneurial was made, due to their membership in an entrepreneurship organization.

The next series of questions aimed at teasing out their serial entrepreneurship pattern, since the subjects of interest for the interviews were those who had experienced a failure, but then moved on to create another venture, which was currently operating or was successfully ended. For each business they were involved in, subjects were asked to select from a series of reasons why the individual is no longer associated with the business. The responses were coded for failure/non failure based on the following categorization:

- Sold the business (or my share of the business) with no resulting debt – *non-failure*
- Sold the business (or my share of the business) but maintained some debt - *failure*
- Shut down the business, with no resulting debt – *non-failure*

- Shut down the business, with some debt - *failure*
- Left the business with no payout, but my partner(s) kept the business going - *failure*
- Other \_\_\_\_ (write in)

Then they were asked what they did after they left the business, and the *success* responses, combined with the above *failure* choices, led to the failure/recovery pattern of individuals optimal for interviewing.

- Started another business, which I'm still associated with - *success*
- Started another business but I'm no longer associated with that business – *success or non-success, depending on the responses to the subsequent venture questions*
- Took a job as an employee - *non-success*

The resulting combinations were then coded into the following four groups for

purposes of analysis:

- 1 = not an entrepreneur
- 2 = entrepreneur with single venture
- 3 = serial entrepreneur, but no failure/recovery pattern
- 4 = serial entrepreneur, with a failure/recovery pattern

There is a complex relationship between failure and exit, which may not be accounted for in the classifications chosen for this study. Thinking of exit

as binary - success or failure – can be limited as it may not take into consideration the entrepreneur's exit intentions, strategies for executing the exit, or the process of exit (Wennberg and DeTienne, 2014). One typology of exit strategies presented by Wennberg, Wiklund, DeTienne, and Cardon (2010) incorporates exit route and performance to create four potential categories of exit. They consider an exit by sale or liquidation to not be the only driver of whether the exit was a success, but also whether or not the performance of the firm was high or low before the sale. Despite the other choices in classifications available from which to choose, the above categorization is not in conflict with other models, and so it is a viable selection for this research.

### 3.3.3.2 Emotion Code

Following the vignette and the list of potential causes (MTurk) and open-ended responses regarding causes (interviews), the participant is asked to identify what the subject of the vignette is feeling at this time, following his failure. The MTurk respondents were provided a list of emotions, with no limit to how many they could pick, while the interviewees were asked the same question, but with open-ended responses which were captured and coded. Emotions were coded as either positive or negative, and then counted. Negative emotions were coded as -1, with positive as +1. A score of -3 or lower was considered very negative, a score of -2 to -1 was negative, 0 was neutral, +1 to +2 was positive, and +3 or higher was coded as very positive.



This valuation aimed to capture the direction and intensity of emotion (measured as frequency) that the participant felt that the vignette subject experienced, and as a result, what their emotional state was going into the immediate next question about counterfactual thinking. To be clear, the measurement of emotion for these studies is not in fact a measure of intensity, but rather is the amount of emotion, or an accounting of the number of the two types of categorized emotions, listed below.

- Negative emotions: angry, frustrated, depressed, hopeless, fearful, shameful
- Positive Emotions: relieved, proud, energized, hopeful, excited, motivated

### 3.3.3.3 Entrepreneurial Self-Efficacy

An entrepreneurial self-efficacy scale (Marlino & Wilson, 2003) was then provided to the participants. The respondents were asked to rate themselves against their peers on six different measures: being able to solve problems, managing money, being creative, getting people to agree with you, being a leader, and making decisions. For each measure, they could choose between much worse, a little worse, about the same, a little better, and much better, with a score of 1 for much worse up to a 5 for much better. The overall mean of all six measures was then calculated as a composite score of self-efficacy. Finally, a histogram of the composite scores was created, with the lowest 25% of the scores considered Low ESE, the middle 50% as Medium ESE, and the top 25% as High ESE.

### 3.3.3.4 Individual Entrepreneurial Orientation

Individual Entrepreneurial orientation is a scale that was born out of the organization-level entrepreneurial orientation measurement, and is an indicator of an individual's propensity to engage in and be successful in entrepreneurial activities (Covin and Slevin, 1989; Bolton and Lane 2012).

There are a series of ten questions, in the categories of Risk, Innovativeness, and Proactiveness, which are measured using a five-point Likert scale (1=strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5=strongly agree).

#### *Risk:*

- 1) I like to take bold action by venturing into the unknown
- 2) I am willing to invest a lot of time and/or money on something that might yield a high return
- 3) I tend to act "boldly" in situations where risk is involved

#### *Innovativeness:*

- 1) I often like to try new and unusual activities that are not typical but not necessarily risky
- 2) I tend to do things the same and not try different, unproven approaches (*reverse scoring*)
- 3) I prefer to try my own unique way when learning new things rather than doing it like everyone else does
- 4) I favor experimentation and original approaches to problem solving, rather than using methods others generally use for solving problems

#### *Proactiveness:*

- 1) I usually act in anticipation of future problems, needs, or changes
- 2) I tend to plan ahead on projects
- 3) I prefer to 'step up' and get things going on projects rather than sit and wait for someone else to do it.

The average of each question results in an IEO score (out of 5). Using the same methodology as ESE, a histogram of all of the participants was

generated, with the bottom 25% considered Low IEO, the middle 50% considered Medium IEO, and the top 25% as High IEO.

### 3.3.4 Analysis of Vignette Study Results

Through the first study, utilizing Amazon MTurk participants, insight was gained into how entrepreneurs engaged in CFT, as compared to non-entrepreneurs. There appears to be a positive relationship between CFT type and whether or not the individual is an entrepreneur, as entrepreneurs more frequently and statistically significantly are selecting self/up CFT than non-entrepreneurs. Due to the nominal nature of the key variables in the hypothesis (entrepreneur type and CFT type), Chi Square tests of independence are the most appropriate statistical tests to utilize and are the primary tool applied for this analysis. With Chi Square, the test statistic is the Pearson Chi Square, and the correlation coefficient is Phi, which shows the level of the relationship. As table 3 shows, CFT is clearly related to entrepreneurial type, with  $p=0.007$ . The Phi Coefficient of 0.229 denotes that 23% of the variance can be explained by entrepreneur distinction. The effect sizes of the differences of observed vs expected indicate that entrepreneurs are more likely to select up/self vs non-entrepreneurs. Interestingly, non-entrepreneurs are more likely to select the opposing selection of other/down more frequently than expected, and entrepreneurs are much less likely to do so. Figure 4 is a graphical representation of these high level results, showing the percentage of entrepreneurs and non-entrepreneurs selecting a particular

CFT type, out of the total from each category. Please note that the figures are based on percentages, unless otherwise notated in the headings, while the tables relay counts.

Table 3: CFT Choice by Entrepreneurial Distinction – Amazon MTurk

		CFT Choice				Total
		Self Up	Other Up	Self Down	Other Down	
Non-Entrepreneur	Count	45	10	15	27	97
	Expected Count	50.2	13.5	16.0	17.3	97.0
Entrepreneur	Count	74	22	23	14	133
	Expected Count	68.8	18.5	22.0	23.7	133.0

#### Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.229	.007
	Cramer's V	.229	.007
	Contingency Coefficient	.223	.007
N of Valid Cases		230	

a. Not assuming the null hypothesis.

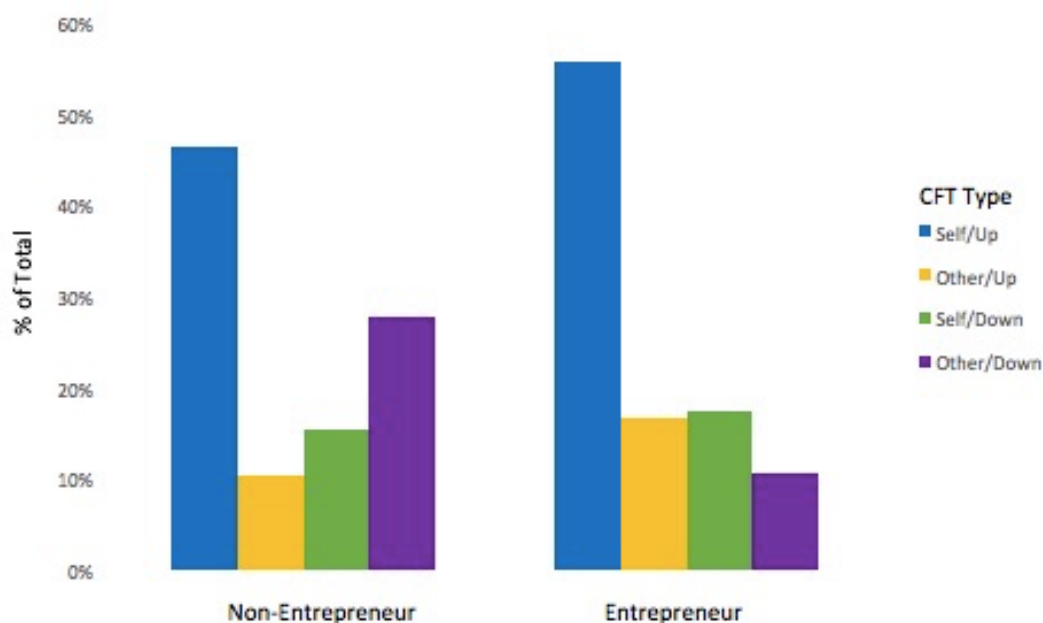
b. Using the asymptotic standard error assuming the null hypothesis.

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.033 <sup>a</sup>	3	.007
Likelihood Ratio	11.984	3	.007
Linear-by-Linear Association	7.071	1	.008
N of Valid Cases	230		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 13.50.

Figure 4: CFT Choice by Entrepreneurial Distinction – Amazon MTurk



In order to evaluate the primary hypothesis that entrepreneurs who learn from failure are utilizing a particular type of CFT as part of their process of recovery, the analysis was further broken down to separate the distinct types of entrepreneurs as described earlier. The chi square test found that indeed there is a relationship between entrepreneur type and CFT choice, with statistical significance ( $p=0.002$ ). Nearly 26% of the variance in CFT type can be explained by entrepreneur type. Entrepreneurs who have learned from failure (multiple venture with failures column) select self-up more often than expected, as can be seen in the cross-tab of table 4. The 0.34 Phi value indicates a moderate level of relationship (0-0.3=low, 0.3-0.6=medium, 0.6+=strong). An interesting finding is that entrepreneurs with multiple ventures but no failures gravitate toward the other/up CFT type. Perhaps this

can be explained as an inability to relate to the failure experience personally, and so they cannot look inward for their understanding.

Table 4: CFT choice by Entrepreneur type – Amazon MTurk

			Entrepreneurial Type				Total
			Not An Entrepreneur	Single Venture	Multiple Venture No Failures	Multiple Venture with Failures	
CFT_Choice	Self Up	Count	45	48	18	8	119
		Expected	50.2	38.3	23.3	7.2	119.0
	Other Up	Count	10	7	14	1	32
		Expected	13.5	10.3	6.3	1.9	32.0
	Self Down	Count	15	11	9	3	38
		Expected	16.0	12.2	7.4	2.3	38.0
	Other Down	Count	27	8	4	2	41
		Expected	17.3	13.2	8.0	2.5	41.0
Total		Count	97	74	45	14	230
		Expected	97.0	74.0	45.0	14.0	230.0

		Value	Approx. Sig.
Nominal by Nominal	Phi	.340	.002
	Cramer's V	.196	.002
N of Valid Cases		230	

	Phi	df	p value (2-sided)
Pearson Chi-Square	26.597 <sup>a</sup>	9	.002
Likelihood Ratio	24.313	9	.004
Linear-by-Linear Association	2.640	1	.104
N of Valid Cases	230		

The above results were broken down further to examine the relationship between entrepreneurs who have recovered following failure (type 4 – multiple venture with failure entrepreneurs) and the two other entrepreneur categories (2&3 – single venture and multiple venture no failure). This was done in order to determine if there is a distinction between the entrepreneur type of interest

(multiple venture with failure) and the other entrepreneur types. In other words, does this type of entrepreneur think differently from other types. Figure 5 and Table 5 below capture the results of this analysis.

Although the results show that there is a relationship between CFT type and these 2 entrepreneur type categories ( $\phi = 0.005$ ) it apparently appears that these differences are not driven by the selection of self/up CFT, but in the mix of the other three CFT types. 57% of entrepreneur type 4 select self/up, while 55% of entrepreneur type 2&3 combined select self/up CFT, clearly not a significant difference. This means that it is really the entrepreneur in total that differs from non-entrepreneurs in CFT type selected, and not necessarily a particular type of entrepreneur. With an n of only 14 for the multiple venture no failure category, however, it is challenging to derive meaningful conclusions from these results.

Figure 5: CFT Choice by Entrepreneurial Type (Comparison of Multiple Venture with Failure to Other Entrepreneur Types) – Amazon MTurk

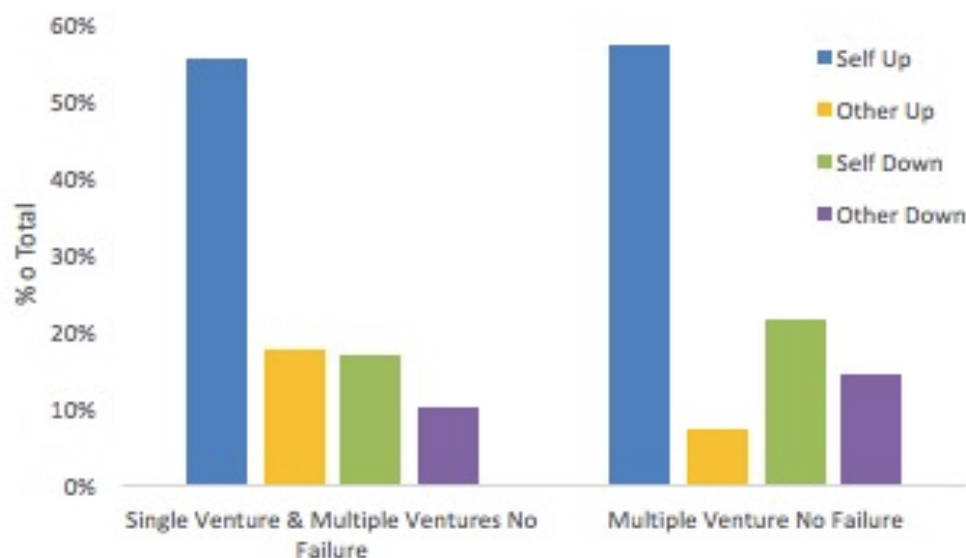


Table 5: CFT Choice by Entrepreneur Type (Comparison of Multiple Venture with Failure to Other Entrepreneur Types) - Amazon MTurk

			Entrepreneur Type		
			Single Venture and Multiple Venture No Failures	Multiple Venture with Failures	Total
CFT_Choice	Self Up	Count	66	8	119
		Expected Count	61.6	7.2	119.0
	Other Up	Count	21	1	32
		Expected Count	16.6	1.9	32.0
	Self Down	Count	20	3	38
		Expected Count	19.7	2.3	38.0
	Other Down	Count	12	2	41
		Expected Count	21.2	2.5	41.0
Total		Count	119	14	230
		Expected Count	119.0	14.0	230.0

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.854	3	.002
Likelihood Ratio	16.389	3	.005
Linear-by-Linear Association	4.102	1	.009
N of Valid Cases	230		

	Value	Approx. Sig.
Nominal by Nominal Phi	.263	.005
Cramer's V	.209	.005
N of Valid Cases	230	

Additional chi square tests were performed, in order to evaluate the relationships between other variables of interest and answer related questions. For example, emotion and CFT type were evaluated, with no significant relationship found. Whether or not the participant indicated that the vignette



subject would learn following failure does not appear to be related to either entrepreneurial type or by the CFT type that was selected. This linkage between CFT type and learning, which is an underlying premise of the dissertation did not hold up with this particular data; however, it may be due to a limitation of the study relating to learning versus performance, which is discussed further in the limitations section of this dissertation. Finally, it was found that both valence and direction of emotion are predicted by entrepreneurial distinction. Entrepreneurs did indicate both negative emotion and a greater number of those emotions as compared to non-entrepreneurs. There is no significant difference, however, among the types of entrepreneurs in this regard.

The above results were followed up with a correlation table, which highlights the relationships between the key ordinal variables measured in the study. Not surprisingly, education and ESE are positively correlated, as is the case with education and IEO. Entrepreneurial experience is also positively correlated with both ESE and IEO, and ESE and IEO are positively correlated with each other as well. One interesting note is that the number of factors selected predicted negative emotion, in other words the greater number of causal factors selected, the greater the negative emotion. This shows that emotion may be induced by presenting the participant with multiple factors to choose from, enabling them to consider negative causes and increasing their negative affect. However, as mentioned above, emotion did not predict CFT choice, so the conclusions drawn from this knowledge are limited.

Table 6: Correlations - Amazon MTurk

		Education	Age	Experience	ESE_Mean	IEO	Factors	Emotion	Learn
Education	Correlation Coefficient	1.000	.123	.118	.201*	.167*	.022	.010	.130*
	Sig. (2-tailed)		.067	.079	.002	.011	.741	.885	.049
Age	Correlation Coefficient	.123	1.000	-.065	-.069	-.149*	.119	-.214**	.027
	Sig. (2-tailed)	.067		.333	.309	.027	.078	.001	.885
Experience	Correlation Coefficient	.118	-.065	1.000	.272**	.336**	-.118	.345**	-.007
	Sig. (2-tailed)	.079	.333		.000	.000	.078	.000	.911
ESE_Mean	Correlation Coefficient	.201**	-.069	.272**	1.000	.588**	-.086	.117	.063
	Sig. (2-tailed)	.002	.309	.000		.000	.195	.077	.338
IEO	Correlation Coefficient	.167*	-.149*	.336**	.588**	1.000	-.019	.063	.044
	Sig. (2-tailed)	.011	.027	.000	.000		.776	.342	.511
Factors	Correlation Coefficient	.022	.119	-.118	-.086	-.019	1.000	-.357**	-.046
	Sig. (2-tailed)	.741	.078	.078	.195	.776		.000	.492
Emotion	Correlation Coefficient	.010	-.214**	.345**	.117	.063	-.357**	1.000	-.045
	Sig. (2-tailed)	.885	.001	.000	.077	.342	.000		.498
Learn	Correlation Coefficient	.130*	.027	-.007	.063	.044	-.046	-.045	1.000
	Sig. (2-tailed)	.049	.885	.911	.338	.511	.492	.498	

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

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

Note: Uses spearman's rho – because the variables are all ordinal

Additionally, a multinomial logistic regression model was prepared, which was selected due to the categorical nature of the dependent variable (CFT type). The results are shown in table 7 below. The results provide minimal additional insight, such as that Type 2 entrepreneurs (those with a single venture) are 3.6 times more likely to choose self/up than other/down. Why this is the case is unclear; however, it might indicate that even without venture failure, the daily obstacles, mistakes, and small losses could impact all entrepreneurs. This is further explored in the discussion. Type 3 entrepreneurs (multiple ventures, no failures) are 9.5 times more likely to choose other/up than other/down, again why this occurred would need to be explored in further study, but could indicate that entrepreneurs who believe to be “failure proof” might have a unique approach to the notion of failure than entrepreneurs who either have one venture or have experienced failure. A few

additional models were run, holding several variables constant, including ESE and IEO with neither providing significant information, other than that the results did not change from what is reported here.

Table 7: Multinomial Logistic Regression (Amazon MTurk)

		B	Std. Error	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
CFT Choice <sup>a</sup>							Lower Bound	Upper Bound
Self Up	Intercept	.511	.243	1	.036			
	Entrep Type 4	.875	.827	1	.290	2.400	.474	12.143
	Entrep Type 3	.993	.604	1	.100	2.700	.826	8.820
	Entrep Type 2	1.281	.453	1	.005	3.600	1.482	8.746
	Entrep Type 1	0 <sup>b</sup>		0				
Other Up	Intercept	-.993	.370	1	.007			
	Entrep Type 4	.300	1.279	1	.815	1.350	.110	16.574
	Entrep Type 3	2.246	.677	1	.001	9.450	2.507	35.627
	Entrep Type 2	.860	.636	1	.177	2.362	.679	8.222
	Entrep Type 1	0 <sup>b</sup>		0				
Self Down	Intercept	-.588	.322	1	.068			
	Entrep Type 4	.993	.968	1	.305	2.700	.405	18.002
	Entrep Type 3	1.399	.682	1	.040	4.050	1.064	15.409
	Entrep Type 2	.906	.565	1	.109	2.475	.817	7.495
	Entrep Type 1	0 <sup>b</sup>		0				

Reference category is other/down

Entrep type 1 set to 0 because redundant

Overall for the Amazon MTurk data, my hypothesis is somewhat supported, because while there is clearly a relationship between entrepreneur type and CFT type, it is still unclear what is driving this phenomenon based on the mixed results between the other variables. The Amazon MTurk population has limitations, which will be addressed later in this dissertation, yet in combination with the second study, a clearer understanding of the relationship between CFT type and Entrepreneur type emerges.

The data collected by phone from the success-following-failure entrepreneurs group was also analyzed for the variables of interest. Table 7 shows the frequency of the 49 participants who were all type 4 entrepreneurs (successful following failure) by CFT type. Figure 6 and Table 8 show the distribution of CFT type for these entrepreneurs.

Figure 6: Frequency (Counts) of CFT type Selected – Phoned Vignettes

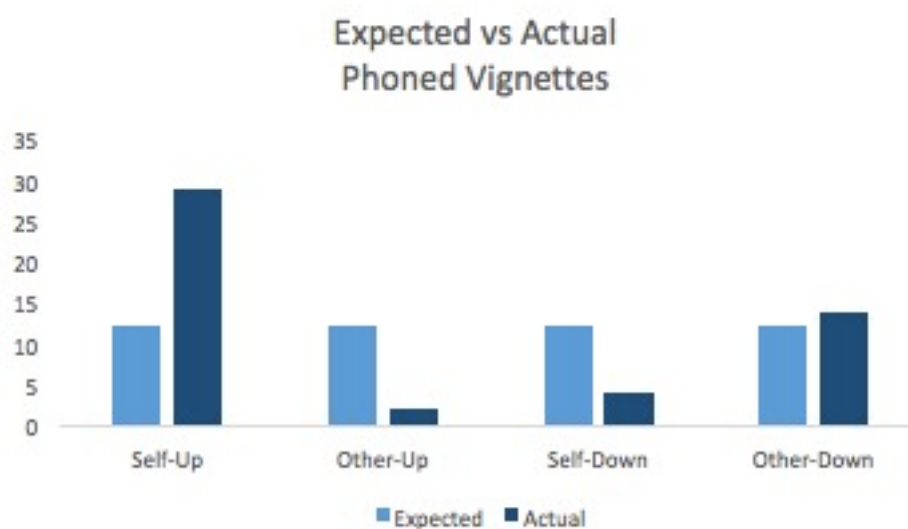


Table 8: Frequency table – CFT type selected – Phoned Vignettes

	Observed N	Expected N	Residual
Self Up	29	12.3	16.8
Other Up	2	12.3	-10.3
Self Down	4	12.3	-8.3
Other Down	14	12.3	1.8
Total	49		

In table 9 below, the Chi Square test of independence shows that indeed these entrepreneurs do display a relationship with CFT type that is greater than expected and very significant ( $p=0.000$ ). The hypothesis that entrepreneurs who have overcome failure to obtain success utilize self-directed upward CFT is supported with these results. These entrepreneurs also display a greater degree of emotion than anticipated ( $p=0.000$ ), anticipate that the vignette subject will learn following failure ( $p=0.000$ ) and have higher IEO than expected ( $p=0.046$ ). These findings support the theory

Table 9: Chi Square Test of Independence – Phoned Vignettes

	Experience	ESE Mean	IEO	Emotion	CFT Choice	Learn
Chi-Square	20.286 <sup>a</sup>	.776 <sup>b</sup>	6.163 <sup>a</sup>	53.122 <sup>a</sup>	37.286 <sup>a</sup>	51.714 <sup>a</sup>
df	4	2	2	3	3	2
Asymp. Sig.	.000	.679	.046	.000	.000	.000

Overall, the results show support for the hypothesis that successful entrepreneurs do utilize self-directed upward CFTs following failure, with both data sets offering different aspects of this conclusion. The strongest evidence comes from the relationship between entrepreneurial distinction (entrepreneur vs non-entrepreneur) in the Amazon MTurk data, combined with the phoned vignette data indicating the greater than expected distribution of CFT type. In the next section, the conclusions which can be drawn from these results will be discussed, as well as the limitations inherent in this study.

## CHAPTER 4: Discussion

### 4.1 Discussion

As detailed throughout this dissertation, previous research on counterfactual thinking in entrepreneurship has produced ambiguous and equivocal results. The findings represented by this study suggest a path forward for future research. It contributes to the literatures of entrepreneurial cognition, entrepreneurial learning, and entrepreneurial failure. This research is the first to consider empirically how successful entrepreneurs utilize counterfactuals in the immediate aftermath of a venture failure, as part of the learning process. There are three main findings from this study that have relevance to entrepreneurship literature and practice: the propensity of entrepreneurs as compared to non-entrepreneurs to engage in self/up CFT following failure, the selection of self/up CFT by successful serial entrepreneurs compared to other types of CFT, and the intensity of negative emotion exhibited by entrepreneurs compared to non-entrepreneurs following failure.

First, entrepreneurs were more likely to engage in self-up type of CFT (versus the other types of CFT) than were non-entrepreneurs. The results from the Amazon MTurk vignettes showed that when presented with the vignette, participants who identified as entrepreneurs to a significant degree enacted the CFT type associated with learning. Not only does this support the hypothesis, but it is original in the CFT entrepreneurship literature and moves

the research forward in this area. Breaking out CFT by type uncovered differences in how entrepreneurs think and recover from failure as compared to non-entrepreneurs. To date, the question has been primarily about whether entrepreneurs are more or less likely than non-entrepreneurs to engage in CFT, yet that question does not consider whether one type of CFT or another might be the preferred thinking of entrepreneurs following failure.

Since the assumption that self-up CFT is the type associated with learning (Morris and Moore, 2000) the findings in this dissertation could inform entrepreneurship practice. In order to encourage learning following failure, for those entrepreneurs already predisposed to engaging in self-up CFT, we should reinforce this reflection; and for those entrepreneurs not inclined to think this way, we can redirect their thinking to consider more positive alternative outcomes had they taken different actions.

Another key finding is that successful serial entrepreneurs engaged in self-up CFT versus other types of CFT at a greater rate than expected, supporting the primary hypothesis of this dissertation. My findings suggest that entrepreneurs who are able to overcome venture failure and then go on to succeed in future ventures may have incorporated the specific type of CFT which is beneficial for learning – that is, upward, self-directed counterfactuals. This is meaningful, because it reinforces the observation that entrepreneurs who seemingly have been able to recover from failure tend to leverage CFT as part of their recovery and learning process. This learning process, as discussed earlier, is not fully understood by researchers, and finding that CFT

may not only be part of the recovery process but can be beneficial to entrepreneurial learning is significant. As with the first finding, from a practical perspective, we can encourage entrepreneurs who are motivated to start anew following a failure to direct their introspection toward better alternative outcomes and awareness of the personal actions which they might have taken to obtain such alternative outcome.

The third key finding was that entrepreneurs reported greater intensity of negative emotion (as measured by the number of negative emotions selected minus number of positive emotions selected) as compared to non-entrepreneurs. Entrepreneurs would be expected to feel intense negative emotion following venture failure, as it can significantly impact them both financially and socially. This finding is interesting, because we do not really know if the reason they felt greater emotion than non-entrepreneurs was because the vignette was specifically an entrepreneurial situation, or if they are more sensitive to failure in general, or if they are simply more emotional. Future research might tease out whether the intensity of emotion is due to the context of failure (entrepreneurial or otherwise) or trait-based. Negative emotion is an antecedent to counterfactual thinking (Roese, 1994) and this research began with the assumption that all participants would engage CFT; however, future testing could confirm whether or not those who did not experience the intensity of negative emotion would have engaged in CFT at all following the vignette.



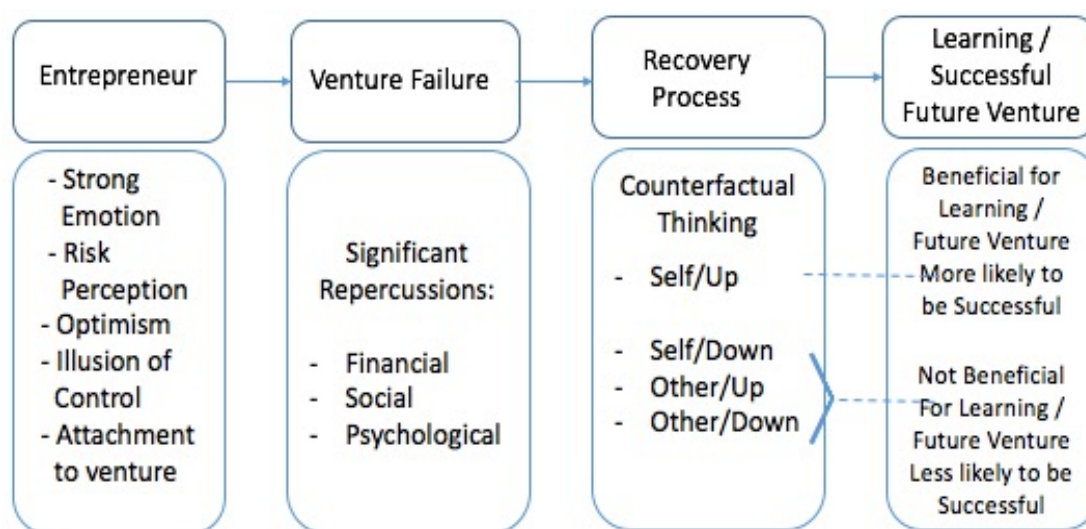
Practically speaking, entrepreneurs who are experiencing venture failure might benefit from sitting with their negative emotions, rather than attempting to overcome them, for at least as long as they can harness it for enacting CFT, especially if the type of CFT is that which is beneficial for learning. This research suggests that this negative emotion can be channeled to self/up CFT and ultimately toward learning from the failure to achieve success in future ventures. Along these lines, the time spent in sitting with one's emotion might also yield a series of counterfactual thoughts of different types. Perhaps one might go through a range of CFT, beginning with a downward counterfactual with the purpose of alleviating the negative affect experienced following the failure. After reducing negative affect to a degree by engaging in a downward counterfactual, the individual might switch to an upward counterfactual, which would contribute to learning. This sequence of counterfactual thinking in the aftermath of a failure could be addressed through interviews and qualitative studies.

The debate over whether entrepreneurs are more or less likely to engage in CFT than non-entrepreneurs is the overarching question that has been asked by entrepreneurial cognition scholars and (by design) is not fully resolved by this research. However, the question of which type of CFT is enacted following entrepreneurial failure is answered and brings us closer to understanding the nuances of CFT in an entrepreneurial failure context. That entrepreneurs who have achieved success are shown to engage in self-focused upward-directed counterfactuals more often than other types of CFT

suggests that at least a part of the recovery process that ultimately induces learning might be benefited by the engagement of this type of CFT. This finding is aligned with prior Morris and Moore's findings regarding the beneficial nature of self-focused upward-directed CFT as it pertains to learning (Morris and Moore, 2000).

Figure 7 represents the extension of Baron's understanding of the entrepreneur's susceptibility to counterfactual thinking overall, in the context of venture failure and the acknowledgement of the nature of the different types of CFT and their contribution to learning (see also Figure 2).

Figure 7: Model of Counterfactual Thinking in the context of Learning from Venture Failure



Yamakawa and Cardon (2015) found that entrepreneurs apply learnings following failure after reflecting on internal versus external causal

ascriptions. This research complements and supports Yamakawa and Cardon's findings, as upward/self-directed counterfactuals were presented by those entrepreneurs who learned from their failures. How individual entrepreneurs learn is valuable insight into the entrepreneurial process, and that counterfactuals of a particular type may be of use to entrepreneurs has significant implications. If we were to guide entrepreneurs to reflect on their failures through an upward/self CFT lens, it could potentially assist in their growth and future success. That the non-entrepreneurs in the MTurk study were more likely to select downward/other type of CFT more than other types may indicate that it is more than causal ascriptions that aid in learning, but the combination of causal ascription and the nature of one's future outlook which work together to enable the greatest learning. It would be of great interest to tease apart these two aspects of counterfactual thinking (causal ascription and outlook direction) to determine whether one or the other or both combined would drive the greatest learning following an entrepreneurial failure.

While the findings of this research suggest that self-focused upward-directed CFT is opted-for by the successful entrepreneurs following failure, it should also be noted that there is a possibility that multiple forms of CFT might be enacted either consecutively or concurrently during the recovery process. The successful entrepreneurs who were interviewed expressed multiple forms of CFT during the recounting of their failure experiences, with five individuals expressing nine counterfactuals. Perhaps entrepreneurs who emerge successful following venture failure utilize a number of CFT types, and future

studies could aim to explore this use of multiple types, the sequence of the different types, and their impact on recovery and learning following failure.

The two scales evaluated in this study were IEO and ESE, based on theories as explained earlier, that these constructs might correlate with learning from failure, as well as CFT type. Surprisingly, there was not a correlation between ESE and indication of learning, nor was there a correlation between IEO and indication of learning. When the regression model was held constant for IEO and ESE, the results did not change in a statistically meaningful way, indicating that these constructs do not appear to be predicting which type of CFT is selected. Certainly there are many other constructs which might play a role in the CFT type enactment, such as regulatory focus, self-esteem, or learning orientation. Future studies should consider these and other individual orientations when evaluating the recovery and learning process from venture failure.

One major underlying assumption of this dissertation is that the successful serial entrepreneur subjects have by definition learned following a venture failure. However, the criteria utilized to identify the participants were the responses to the questions regarding the entrepreneur's business success following a failure. It therefore potentially equates, or at least conflates learning with outcome valence, creating gaps in what can be concluded by this research. Since the study subjects were entrepreneurs who overcame failure to gain success, it is assumed that CFT played a role in that outcome, which is reinforced by the vignette questions that limit the response choice to a type of

CFT (see limitations for further exploration of this concern). In reviewing the transcripts of the phone vignettes, the responses to follow-up questions as to why the participant believed the vignette subject would succeed or fail in his future venture, the responses were vague and did not separate learning from success. For example, the majority of the responses were along the lines of, “If Joe learned from his failure, he’ll succeed.” It is certainly possible, however, that entrepreneurs who have not been successful also engaged in self-focused, upward CFT during their recovery and learning process, which was not studied here.

By the same token, there are certainly many ways in which entrepreneurs learn from failure that do not involve counterfactual thinking, and which are not addressed in this study. In fact, success can also be a learning event, if the individual reflects on the causes of his success and aims to repeat them. Since the primary antecedent to CFT is negative affect, any other emotion might trigger a different cognitive process, which could contribute to learning.

Unsuccessful entrepreneurs may learn from failure, yet not go on to succeed due to other conditions that prevented success. In considering which conditions those might be which could inhibit success, it becomes a circular debate as to whether learning from the failure might have accounted for whatever conditions occur. For example, if one argues that the unanticipated entry of a competitor in one’s second venture might negate whatever learning the entrepreneur achieved following his first venture’s failure, the counter-

argument would be that had the entrepreneur truly learned from the failure of the first venture, he would have both anticipated the obstacle and planned for how to overcome it. This opens up so many questions about the nature of learning from failure and how targeted and specific that learning may be, which could be a focus of a future study. In other words, is the learning specific to the reason for the failure, or does it have broader application? If the primary reason for my failure was the lack of anticipation of and planning for the entry of competitors and I learn to be vigilant of this in my future venture, does it mean that I am still susceptible to other venture-killing issues, such as manufacturing problems or economic conditions of the industry? Success and learning therefore ideally should be evaluated separately. Although participants were asked to anticipate whether or not the following venture of the vignette subject would result in future success, it would also have been beneficial to ask what they thought the learnings were. Additionally, utilizing lab studies or longitudinal qualitative studies to dig deeper into learning and how that translates to success would be a useful direction to take this research further.

In addition, the sample selected for this research of entrepreneurs who have recovered from failure to achieve success is meaningful in itself, since most entrepreneurship studies on entrepreneurial failure focus on the period of time following failure, but before starting a subsequent venture. While challenging to find forty-nine entrepreneurs who fit this category of entrepreneur, it demonstrates that it is possible to identify such a participant

pool and opens the door for entrepreneurship scholars to further tease apart the complex relationship between entrepreneurial emotion, cognition, behavior, and outcomes in the context of a devastating event.

## 4.2 Limitations and Future Research

This study is not without its limitations, both theoretically and procedurally. First, the vignette methodology by its nature asks participants to identify with the subject of the vignette, and the questions asked about how Joe is thinking and feeling also aims to elicit this identification. However, participants (especially those taking the study via MTurk) may alternatively be succumbing to fundamental attribution error, which refers to a bias in explaining others' behaviors. According to this bias, when we make attributions about another person's actions, we are likely to overemphasize the role of dispositional factors, while minimizing the influence of situational factors (Ross, 1977). This means that the participants could have more easily called out Joe's failure as his mistakes, with little concern to protect Joe with a different explanation or CFT choice. This would seem to be a limitation in nearly any vignette study where participants are asked to highlight problems or issues that the vignette subject demonstrates. Attempts to mitigate this were the creation of a relatable vignette subject and plausible situation, however it is possible that this concern was not overcome, and future studies should

consider alternative methods and/or probative questions to identify if this issue clouded the results.

Another concern with this particular vignette methodology is that it added two levels of distance between the participant and the vignette subject. First the participant is asked to imagine an imaginary situation, and then second to imagine that he or she is named “Joe.” A better approach, which may also have yielded stronger results, would be to have the participant imagine that “you” are the entrepreneur in the scenario, rather than Joe. This would have removed the second level of distance and could have potentially added to the degree of connection the participant felt to the vignette subject. While difficult to measure, and not visibly evident, it is also necessary to acknowledge that the participants may not have given their full attention to the reading of the vignette, as it was somewhat lengthy and they were not physically present in front of the researcher while reading or hearing the vignette.

Additionally, the degree of humility of the entrepreneur could also be considered as a trait worth examining as a mediating factor in which CFT type is chosen. In other words, the humbler the entrepreneur, the potentially more likely he or she would select self-attributed (vs. other) CFT types; however, it would not necessarily impact his/her upward or downward outlook direction. Humility has been explored somewhat in the entrepreneurship literature, with findings that the greater the humility of the entrepreneur, the more easily approached by others (and by extension the entrepreneur would develop a



broader network). Additionally, humility aids in controlling anger and ego, two characteristics that may lead to unwanted problems and mistakes (Toftoy and Jabbour, 2004).

Also, some of the wording within the vignette may have primed a self-focused comparison, such as the Wall Street Journal's citing of leadership problems contributing to the company's decline. This specific aspect of the vignette was included in order to elicit emotions such as stress and embarrassment from the public exposure. Despite the intent of the inclusion of this passage, future studies utilizing this vignette should carefully examine whether this could impact the results. In this case, while noted as a limitation, the results did not necessarily indicate a propensity toward self-directed CFTs overall, but instead showed a distribution of the remaining 3 CFT types relatively equally.

Additionally, for the MTurk study, the participants were provided a list of emotions from which to choose, which was certainly not an exhaustive inventory of all possible emotions they could have felt. For example, regret, dissatisfaction, and envy were not included in the list, which all could have been potential emotions they were feeling and might have also primed counterfactual thinking. In the phone study, the participants had an open-ended question regarding their emotions, and so this did not impact their results. Interestingly, the phone participants chose much less formal language to describe their emotions, including words such as "terrible, horrible, awful, bad," as well as a few expletives.

While the sample of entrepreneurs telephoned who have overcome failure to achieve success is novel in the entrepreneurial failure literature, it also was limited by the nature of the businesses founded by the entrepreneurs. While not specifically queried, for the most part, the businesses were quite small and were not disruptive organizations. Despite the requirements to belong to the Entrepreneur Pioneers Initiative group, most of the entrepreneurs at the time of their interviews were either sole-proprietors with very few or even no employees or were in traditional industries such as catering, personal training, and apparel. While still a viable and interesting subject pool, it would be interesting to determine in future studies whether or not entrepreneurs with greater footprints would yield different results.

In addition, while the sample of use was unique and somewhat novel in the entrepreneurial learning literature, the methodology of this study limited what was gleaned from this special participant pool. In order to hone in on the CFT type used following failure, the participants were offered a vignette as the method of study; however perhaps it would be of greater import to have conducted a qualitative study of these individuals, similar to the interview technique applied to the five entrepreneurs in the pre-study. Full interviews with these subjects could yield additional or potentially contradictory results about how counterfactuals were and were not utilized in their recovery and learning processes. This would enable open-ended responses that may have either led to different results, or would have better explained similar results obtained. Alternatively, a lab study where failure conditions could be

manipulated followed by think-aloud protocol such as is utilized in the effectuation literature would be beneficial for a deeper understanding of the connections between the entrepreneur, the failure recovery process, and the subsequent learning. Future studies in this area might want to consider utilizing one of these alternative methods.

By the same token, the Amazon MTurk participant group has its own limitations. The phoned group at least were confirmed to be entrepreneurs who met established criteria, and who by the nature of the methodology were forced to pay attention to the details of the vignette and consider the subsequent questions carefully in order to provide a thoughtful response. Conversely, the MTurk participants were offered twenty-five cents (an amount in line with similar requests on the platform) to complete the study, and there really is no way to know whether the participants answered the demographic questions truthfully, and whether they carefully considered the vignette and subsequent questions in order to provide thoughtful responses. A handful of data points where the time to complete was too fast (less than four minutes) were removed, but certainly there remain questions as to the validity of the MTurk responses.

Additionally, the vignette study required the participants to select from one of four types of counterfactual thinking (upward/self, upward/other, downward/self, downward/other) but did not offer a choice of none of the above. This is a limitation in that it assumes that the counterfactual thought was generated, rather than the possibility that an entirely different mechanism

was utilized to recover and/or learn from the experience. This structure of the question was necessary in order to narrow the focus of the study and to test the specific hypothesis of which CFT type was utilized. When questioned, however, the phoned participants did not indicate that they could not select from the offered responses, only that in a few cases they were considering multiple CFT responses. This speaks to the multiple-CFT possibility addressed in the discussion section above. What is still unknown based on the structure of this question, therefore, is whether or not the CFT would be enacted in this phase of the recovery, and if so, how long following the failure event would this occur. Future studies should address this issue in order to fill out this gap in the learning.

Along the same lines, the forced responses were based on a particular causal factor, namely the negative financial outcome that the vignette subject experienced. This left out the social and psychological aspects of the failure in the CFT choices. Possibly this is an issue to explore in future studies, because it could be that some of the participants may have been focused on alternative causations, especially since they were offered a laundry list of potential causes of the vignette subject's demise. A non-statistical evaluation of the connection between category of causal factors selected and CFT type selected do not show any connection; however future studies might prepare multiple vignettes with differing causal factors as the subject of the CFT choices, to ensure that there is no bias inherent in the wording of the question.

One factor that should be considered is the emphasis in this study on counterfactual thinking versus regret. Statements of regret are often used interchangeably with counterfactuals (Baron, 1999 and Arora and Haynie 2013). The statements included in the five interviews of successful entrepreneurs in the pre-study are a combination of regrets and counterfactuals, and while potentially a limitation that counterfactuals were not be isolated in the pre-study, it is within accepted practice by former scholars studying counterfactuals.

As a final note, this research focused on the recovery and learning process following a total venture failure, rather than an exploration of the role that smaller failures or mistakes in general which were encountered throughout the entrepreneurial process were handled by the entrepreneurs. Besides attempting to narrow the scope of the research, another key reason for not addressing mistakes as compared to failure is the strong emotion which is tied to loss of one's business (Cardon & McGrath, 1999; Shepherd, 2003) and the potentially triggering impact it could have on CFT enactment (Roese, 1994). Future studies could further investigate the role that singular or the combination of multiple mistakes and/or miniature failures encountered along the way play in learning, such as the loss of a key client or prospect or profits taking a hit temporarily due to unanticipated liabilities. Since venture failures could have resulted from the compounding nature of multiple smaller failures, it would be of interest to determine if entrepreneurs' cognitive and emotional reactions to initial mistakes are different from how they respond once the

venture ultimately fails. Do entrepreneurs and non-entrepreneurs differ in how they handle and/or explain small mistakes, which ultimately leads to a difference in how they address the larger ones? Or do entrepreneurs who are better able to accurately reflect upon and assess their smaller mistakes result in a more effective learning once the venture fails? These questions could be addressed through future research in this area.

#### 4.3 Conclusion

Failure is pervasive in entrepreneurship, yet how one recovers and learns from failure in order to achieve success has been limited. I believe this research represents an important and meaningful step toward uncovering and evaluating the role that counterfactual thinking plays in the entrepreneurial failure recovery process and advances both the pedagogy and practice of entrepreneurship. Failure has become a badge of honor in the entrepreneurial space, but only as it allows for recovery and learning, in order to create a more fruitful enterprise. Encouraging entrepreneurs to direct their counterfactual thinking to the type most beneficial for learning, therefore, may be one of the tools which can aid in that necessary recovery and learning.

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### Appendix A: Pre-Interview Questions:

The following questions will be utilized as a framework and a starting point for the interviews, which will be conducted. Following a semi-structured approach, these questions are representative only and may not be worded exactly as depicted, with an expectation that additional questions may be asked, in follow-up to the responses which are provided by the subjects. Introductory and relationship-building questions are not listed below but are assumed to be asked. Italicized remarks are notes about the intent behind the question.

- 1) Please discuss your career (in terms of managerial or entrepreneurial activity). *This is not the actual question, but serves as a placeholder for background and qualification questions. Follow up probing to elicit information on firm creation, number of years per venture, nature of the venture, etc.*
- 2) Share any successes you are especially proud of in your career. *Starting with the positive will hopefully further emphasize the failure events to be discussed. Follow-up questions about the emotions associated with the success will be asked, as well as the intensity of those emotions.*
- 3) Please describe a situation in which you experienced a significant failure in your career/venture. *Probative questions involve gaining a better understanding of the nature and significance of the failure, in*

*order to immerse the subject in the failure and to elicit language to inform the vignette studies. Note if more than 1 failure, the participant will be led to discuss the first failure, and compare to the second, such that a first failure might elicit greater emotions, or the compounding of failures may do so as well.*

- 4) What impact did this failure have on your financial situation?
- 5) What impact did this failure have on your relationships?
  - a. Personal relationships (spouse, immediate family, friends, etc)
  - b. Business relationships (suppliers, customers, competitors, overall network, etc)
- 6) Thinking back to the time when you experienced this failure (*referencing the specific events of the failure discussed*) can you describe the emotions you were experiencing. *Trying here to get a lot of detail on the emotional side as well as key words, repeat language. Also follow up questions about the intensity of the emotions experienced (i.e. was this feeling of embarrassment greater in this instance than another time you experienced embarrassment?)*
- 7) Thinking back to the time when you were experiencing this failure situation, did you ever consider what it would have been like if things had been different? How would you describe those thoughts? *Here I will try to guide the participant into describing their counterfactual thoughts, for example asking if they wondered about what things would have been like if they had not failed. The purpose is to determine if*



*they utilized upward or downward type, as well as self or other focused thinking (or multiple types). The follow-up questions will tease out these categorizations by specifically asking for example, did you think about what caused the failure (self/other) and did you primarily imagine a worse situation that you avoided or daydream about where you'd be now if the failure hadn't occurred (upward/downward).*

- 8) How long did these thoughts about what could have been different last?  
*(i.e. days, weeks, years, still thinking about it, etc)*
- 9) How did these thoughts make you feel about yourself at the time of the failure *(i.e. were they comforting, depressing, etc)*
- 10) How long did it take between failure and decision to start a new venture? *Depending on the responses, will try to link the type of CFT to the*
- 11) What are the things that you learned from the failure that you applied to your subsequent venture? *Intent here is to link the failure to the learnings, which is the main interest with this research. Follow up clarification questions will be asked to determine whether a cause-effect relationship between the CFT and learning is possibly evident.*

## Appendix B: Amazon MTurk Study

Q1 Thank you for your participation in this important study, aimed at better understanding how people are impacted following failure. It should take approximately 10 minutes to complete. Please answer openly and truthfully.

*You are invited to participate in a research study that is being conducted by a doctoral candidate in the Management and Global Business Department at Rutgers University. The purpose of this research is to determine how people react to failure. This research is anonymous. Anonymous means that I will record no information about you that could identify you. There will be no linkage between your identity and your response in the research. This means that I will not record your name, address, phone number, date of birth, etc. The research team and the Institutional Review Board at Rutgers University are the only parties that will be allowed to see the data, except as may be required by law. If a report of this study is published, or the results are presented at a professional conference, only group results will be stated. All study data will be kept for five years. There are no foreseeable risks to participation in this study.*

*Participation in this study is voluntary. You may choose not to participate, and you may withdraw at any time during the study procedures without any penalty to you. In addition, you may choose not to answer any questions with which you are not comfortable. If you have any questions about your rights as a research subject, please contact an IRB Administrator at the Rutgers University, Arts and Sciences IRB: Institutional Review Board*

*Rutgers University, the State University of New Jersey Liberty Plaza / Suite 3200 335 George Street, 3rd Floor New Brunswick, NJ 08901 Phone: 732-235-2866*

*Email: [humansubjects@orsp.rutgers.edu](mailto:humansubjects@orsp.rutgers.edu) Please retain a copy of this form for your records. By participating in the above stated procedures, then you agree to participation in this study.*

*If you are 18 years of age or older, understand the statements above, and will consent to participate in the study, click on the "I Agree" button to begin the survey/experiment. If not, please click on the "I Do Not Agree" button which you will exit this program.*

☐ I agree (1)

☐ I do not agree (2)

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Q2 Please read the following situation carefully, describing the experiences of a business founder:

This is a story about Joe. Joe is the founder and owner of a large global software company. He started the company 10 years ago, after having come up with an idea for a revolutionary software product. He started the company in his basement, working around the clock to develop the product, sell the idea to potential customers, and secure the necessary financing.

After an initial tough 2 years, the company experienced exponential growth once the product took off. After 7 years, the company hit its peak, with employees in offices all over the world. He was even profiled in the Wall Street Journal.

For the past 3 years, however, revenue and profit have been steadily declining. A competitor has entered the market with a better product and lower prices, and customers have been slowly leaving Joe's company or negotiating lower prices to stay with him. Joe has some ideas about how to improve his product to better compete, but the banks have refused to offer Joe any more financing.

He's had to lay off employees and close smaller offices. He has not taken a salary for himself in the past 3 years and has nearly drained all of his savings in order to meet the financial obligations of the company. He has tried to sell the company, but after several months, there are no offers. Both the company and he himself are very near bankruptcy.

Joe had no choice but to close down the company, which he announced to his employees, customers, and creditors. The banks are working with him to minimize his debt, but he has no immediate plans for employment, once he closes down the company. The Wall Street Journal ran a follow-up story about the rapid decline of the company and highlighted problems with his leadership as the problem.

Q3 The following 3 questions are based on the above situation:

Please select any of the below factors which you believe contributed to the entrepreneur's situation at this time. More than one factor may be selected:

- ☐ Lack of sufficient financing (1)
- ☐ Growing too quickly without the right infrastructure (2)
- ☐ Poor timing of product launch (3)
- ☐ Joe's ego prevented him from accepting the truth (4)
- ☐ Employees were not committed to the company (5)
- ☐ Joe wasn't passionate enough about the business (6)
- ☐ Bad decision-making by Joe (7)
- ☐ Economic decline of the country (8)
- ☐ Poor management of the employees (9)
- ☐ Joe being a single founder, rather than a partnership or team (10)
- ☐ Joe's lack of knowledge about the industry globally (11)
- ☐ Global political hurdles (12)
- ☐ Joe holding on too long while the company was in decline (13)
- ☐ Joe was too slow to react to restructure the company (14)
- ☐ Barrier to entry for competitors was too low (15)
- ☐ Not enough experts were consulted (16)
- ☐ Joe did not have a contingency plan (17)

☐ Other (please write in) : (18)

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Q31 If you were Joe, what would you be feeling right now? (Check all that apply)

- ☐ Angry (1)
  - ☐ Frustrated (2)
  - ☐ Depressed (3)
  - ☐ Relieved (4)
  - ☐ Proud (5)
  - ☐ Energized (6)
  - ☐ Hopeless (7)
  - ☐ Hopeful (8)
  - ☐ Excited (9)
  - ☐ Fear (10)
  - ☐ Shame (11)
- 



Q4 If you were Joe, what would you be thinking at this time? Select only 1 of the below responses:

- ☐ If only I had found a way to modify my product or processes in order to remain competitive, I would still be running a successful company. (1)
  - ☐ If only the bank would have offered me the additional financing I requested, I would have been able to invest in the product and turn the company around. (2)
  - ☐ At least I shut the company down when I did, because if I had waited any longer, I would now have even more debt, and my reputation would never have a chance to recover. (3)
  - ☐ At least the banks were willing to help me reduce my debt, otherwise I would be completely ruined financially. (4)
- 



Q5 If Joe goes on to start another business, what do you think will happen? Select only 1 of the below responses:

- ☐ The next business will be less successful than RJA (1)
  - ☐ The next business will be more successful than RJA (2)
  - ☐ The next business will be about the same level of success of RJA (3)
- 

Q6 The next few questions are about your background (if any) in entrepreneurship:

Would you describe yourself as an entrepreneur or of having entrepreneurial mindset (whether in the past, present, or future) ?

- ☐ Yes (1)
- ☐ No (2)

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Q7 Which of the following best describes your entrepreneurial situation: (Select all that apply)

- ☐ I currently own and operate my own business (8)
  - ☐ I founded my own business (9)
  - ☐ I have founded and operated several businesses (1)
  - ☐ I am currently working on developing another business. (2)
  - ☐ I am opening my own business in the next 3 months (4)
  - ☐ I am in the process of opening my own business (5)
  - ☐ I am in the process of writing a business plan for my own business (6)
  - ☐ I am not starting a business right now, but I think of myself as being "entrepreneurial" (7)
- 

Q8 Have you started more than 1 business?

- ☐ Yes (1)
  - ☐ No (2)
- 

Q21 Are you still associated with your business?

- ☐ Yes (1)
  - ☐ No (2)
-

Q9 How many businesses have you started?

- ☐ 2 (1)
  - ☐ 3-5 (2)
  - ☐ more than 5 (3)
- 

Q10 How many businesses have you started in the past, that you are no longer associated with now?

- ☐ None - I am still associated with my business(es) (1)
  - ☐ 1 (2)
  - ☐ 2 (3)
  - ☐ 3 or more (4)
-



Q11 For the business that you are no longer associated with, please select one or more reasons why:

- ☐ I sold the business (or my share of the business) and I made a profit (1)
  - ☐ I sold the business (or my share of the business) and I incurred no debt (2)
  - ☐ I sold the business (or my share of the business) and I incurred some debt (3)
  - ☐ I shut down the business, and I incurred no debt (4)
  - ☐ I shut down the business, and I incurred some debt (5)
  - ☐ I left the business with no payout, but my partner(s) kept the business going (6)
  - ☐ Other (please write in) : (7)
- 

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Q25 After you left this business, what did you do next?

- ☐ I started another business, which I am still associated with (1)
  - ☐ I started another business, but I am no longer associate with that business (2)
  - ☐ I took a job as an employee (3)
-

Q15 For the first business that you are no longer associated with, please select one of the following reasons why:

- ☐ I sold the business (or my share of the business) and I made a profit (1)
  - ☐ I sold the business (or my share of the business) and I incurred no debt (2)
  - ☐ I sold the business (or my share of the business) and I incurred some debt (3)
  - ☐ I shut down the business, and I incurred no debt (4)
  - ☐ I shut down the business, and I incurred some debt (5)
  - ☐ I left the business with no payout, but my partner(s) kept the business going (6)
  - ☐ Other (please write in) : (7)
- 

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Q26 After you left the first business, what did you do next?

- ☐ I started another business, which I am still associated with (1)
  - ☐ I started another business, but I am no longer associate with that business (2)
  - ☐ I took a job as an employee (3)
-

Q16 For the second business that you are no longer associated with, please select one of the following reasons why:

- ☐ I sold the business (or my share of the business) and I made a profit (1)
  - ☐ I sold the business (or my share of the business) and I incurred no debt (2)
  - ☐ I sold the business (or my share of the business) and I incurred some debt (3)
  - ☐ I shut down the business, and I incurred no debt (4)
  - ☐ I shut down the business, and I incurred some debt (5)
  - ☐ I left the business with no payout, but my partner(s) kept the business going (6)
  - ☐ Other (please write in) : (7)
- 

-----

Q27 After you left the second business, what did you do next?

- ☐ I started another business, which I am still associated with (1)
  - ☐ I started another business, but I am no longer associate with that business (2)
  - ☐ I took a job as an employee (3)
-

Q17 For any additional business that you are no longer associated with, please select one of the following reasons why:

- ☐ I sold the business (or my share of the business) and I made a profit (1)
  - ☐ I sold the business (or my share of the business) and I incurred no debt (2)
  - ☐ I sold the business (or my share of the business) and I incurred some debt (3)
  - ☐ I shut down the business, and I incurred no debt (4)
  - ☐ I shut down the business, and I incurred some debt (5)
  - ☐ I left the business with no payout, but my partner(s) kept the business going (6)
  - ☐ Other (please write in) : (7)
- 

-----

Q28 After you left this business, what did you do next?

- ☐ I started another business, which I am still associated with (1)
  - ☐ I started another business, but I am no longer associate with that business (2)
  - ☐ I took a job as an employee (3)
-

Q22 For the first business that you are no longer associated with, please select one of the following reasons why:

- ☐ I sold the business (or my share of the business) and I made a profit (1)
  - ☐ I sold the business (or my share of the business) and I incurred no debt (2)
  - ☐ I sold the business (or my share of the business) and I incurred some debt (3)
  - ☐ I shut down the business, and I incurred no debt (4)
  - ☐ I shut down the business, and I incurred some debt (5)
  - ☐ I left the business with no payout, but my partner(s) kept the business going (6)
  - ☐ Other (please write in) : (7)
- 

-----

Q29 After you left the first business, what did you do next?

- ☐ I started another business, which I am still associated with (1)
  - ☐ I started another business, but I am no longer associate with that business (2)
  - ☐ I took a job as an employee (3)
-

Q23 For the second business that you are no longer associated with, please select one of the following reasons why:

- ☐ I sold the business (or my share of the business) and I made a profit (1)
  - ☐ I sold the business (or my share of the business) and I incurred no debt (2)
  - ☐ I sold the business (or my share of the business) and I incurred some debt (3)
  - ☐ I shut down the business, and I incurred no debt (4)
  - ☐ I shut down the business, and I incurred some debt (5)
  - ☐ I left the business with no payout, but my partner(s) kept the business going (6)
  - ☐ Other (please write in) : (7)
- 

-----

Q30 After you left the second business, what did you do next?

- ☐ I started another business, which I am still associated with (1)
  - ☐ I started another business, but I am no longer associate with that business (2)
  - ☐ I took a job as an employee (3)
-

Q18 How many total years of experience do you have as an entrepreneur?

- ☐ 1-2 years (1)
  - ☐ 3-5 years (2)
  - ☐ 5-10 years (3)
  - ☐ 10-20 years (4)
  - ☐ More than 20 years (5)
- 

Q19 Were either of your parents entrepreneurs?

- ☐ Yes (1)
  - ☐ No (2)
-

Q20 Please rate how you compare to your peers on the following:

	Much worse than my peers (1)	Slightly worse than my peers (2)	About the same as my peers (3)	Slightly better than my peers (4)	Much better than my peers (5)
Being able to solve problems (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing money (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being creative (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Getting people to agree with you (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being a leader (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Making decisions (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

-----



Q24 Please rate your level of agreement with the following statements:

	Strongly Disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
I like to take bold action by venturing into the unknown (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to invest a lot of time and/or money on something that might yield a high return (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tend to act "boldly" in situations where risk is involved (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often like to try new and unusual activities that are not typical but not necessarily risky (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tend to do things the same and not try different, unproven approaches (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer to try my own unique way when learning new things, rather than doing it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

like everyone  
else does (6)

I favor  
experimentation  
and original  
approaches to  
problem  
solving, rather  
than using  
methods others  
generally use  
for solving  
problems (7)

I usually act in  
anticipation of  
future  
problems,  
needs, or  
changes (8)

I tend to plan  
ahead on  
projects (9)

I prefer to 'step  
up' and get  
things going on  
projects rather  
than sit and  
wait for  
someone else  
to do it (10)

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

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Q25 What is your highest level of education?

- ☐ High school (1)
  - ☐ Some college (2)
  - ☐ Undergraduate (3)
  - ☐ Post-graduate (4)
- 

Q26 What is your gender?

- ☐ Male (1)
  - ☐ Female (2)
- 

Q27 Please specify your ethnicity

- ☐ White (1)
  - ☐ Hispanic or Latino (2)
  - ☐ Black or African American (3)
  - ☐ Native American or American Indian (4)
  - ☐ Asian/Pacific Islander (5)
  - ☐ Other (6)
-

Q32 What is your age?

☐ Under 21 (1)

☐ 22-30 (2)

☐ 31-40 (3)

☐ 41-50 (4)

☐ 51-60 (5)

☐ Over 60 (6)

## Appendix C: EPI Participant Selection Survey

Q1 Thank you for your participation in this important study. It should take approximately 5 minutes to complete. If you provide complete information, you will receive a \$5.00 Starbucks gift card. Please answer openly and truthfully.

*You are invited to participate in a research study that is being conducted by a doctoral candidate in the Management and Global Business Department at Rutgers University.*

*The research team and the Institutional Review Board at Rutgers University are the only parties that will be allowed to see the data, except as may be required by law. If a report of this study is published, or the results are presented at a professional conference, only group results will be stated. All study data will be kept for five years. There are no foreseeable risks to participation in this study.*

*Participation in this study is voluntary. You may choose not to participate, and you may withdraw at any time during the study procedures without any penalty to you. In addition, you may choose not to answer any questions with which you are not comfortable. If you have any questions about your rights as a research subject, please contact an IRB Administrator at the Rutgers University, Arts and Sciences IRB: Institutional Review Board Rutgers University, the State University of New Jersey Liberty Plaza / Suite 3200 335 George Street, 3rd Floor New Brunswick, NJ 08901 Phone: 732-235-2866*

*Email: [humansubjects@orsp.rutgers.edu](mailto:humansubjects@orsp.rutgers.edu) Please retain a copy of this form for your records. By participating in the above stated procedures, then you agree to participation in this study.*

*If you are 18 years of age or older, understand the statements above, and will consent to participate in the study, click on the "I Agree" button to begin the survey/experiment. If not, please click on the "I Do Not Agree" button which you will exit this program.*

☐ I agree (1)

☐ I do not agree (2)

End of Block: Default Question Block

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Start of Block: Default Question Block

Q10 Please select any of the below which describes your entrepreneurial situation (select all that apply)

- ☐ I own and operate my own business (3)
  - ☐ I have founded and operated several businesses (1)
  - ☐ I am currently working on developing another business. (2)
  - ☐ I am opening my own business in the next 3 months (4)
  - ☐ I am in the process of opening my own business (5)
  - ☐ I have started a business in the past (6)
  - ☐ I am in the process of writing a business plan for my own business (7)
  - ☐ I am in the process of writing a business plan with business partners (8)
  - ☐ I have many business ideas but I have not yet written a business plan (9)
  - ☐ I am not starting a business right now, but I think of myself as being "entrepreneurial" (10)
  - ☐ I do not think of myself as being an entrepreneur (11)
- 

Q11 Have you started more than 1 business?

- ☐ Yes (1)
  - ☐ No (2)
-

Q12 Are you still associated with your business?

☐ Yes (1)

☐ No (2)

---

Q13 How many businesses have you started?

☐ 2 (1)

☐ 3-5 (2)

☐ more than 5 (3)

---

Q14 How many businesses have you started in the past, that you are no longer associated with now?

☐ None - I am still associated with my business(es) (1)

☐ 1 (2)

☐ 2 (3)

☐ 3 or more (4)

---

Q15 For the business that you are no longer associated with, please select one or more reasons why:

- ☐ I sold the business (or my share of the business) and I made a profit (1)
  - ☐ I sold the business (or my share of the business) and I incurred no debt (2)
  - ☐ I sold the business (or my share of the business) and I incurred some debt (3)
  - ☐ I shut down the business, and I incurred no debt (4)
  - ☐ I shut down the business, and I incurred some debt (5)
  - ☐ I left the business with no payout, but my partner(s) kept the business going (6)
  - ☐ Other (please write in) : (7)
- 

-----

Q16 After you left this business, what did you do next?

- ☐ I started another business, which I am still associated with (1)
  - ☐ I started another business, but I am no longer associate with that business (2)
  - ☐ I took a job as an employee (3)
-



Q17 For the first business that you are no longer associated with, please select one of the following reasons why:

- ☐ I sold the business (or my share of the business) and I made a profit (1)
  - ☐ I sold the business (or my share of the business) and I incurred no debt (2)
  - ☐ I sold the business (or my share of the business) and I incurred some debt (3)
  - ☐ I shut down the business, and I incurred no debt (4)
  - ☐ I shut down the business, and I incurred some debt (5)
  - ☐ I left the business with no payout, but my partner(s) kept the business going (6)
  - ☐ Other (please write in) : (7)
- 

-----

Q18 After you left the first business, what did you do next?

- ☐ I started another business, which I am still associated with (1)
  - ☐ I started another business, but I am no longer associate with that business (2)
  - ☐ I took a job as an employee (3)
-

Q19 For the second business that you are no longer associated with, please select one of the following reasons why:

- ☐ I sold the business (or my share of the business) and I made a profit (1)
  - ☐ I sold the business (or my share of the business) and I incurred no debt (2)
  - ☐ I sold the business (or my share of the business) and I incurred some debt (3)
  - ☐ I shut down the business, and I incurred no debt (4)
  - ☐ I shut down the business, and I incurred some debt (5)
  - ☐ I left the business with no payout, but my partner(s) kept the business going (6)
  - ☐ Other (please write in) : (7)
- 

-----

Q20 After you left the second business, what did you do next?

- ☐ I started another business, which I am still associated with (1)
  - ☐ I started another business, but I am no longer associate with that business (2)
  - ☐ I took a job as an employee (3)
-

Q21 For any additional business that you are no longer associated with, please select one of the following reasons why:

- ☐ I sold the business (or my share of the business) and I made a profit (1)
  - ☐ I sold the business (or my share of the business) and I incurred no debt (2)
  - ☐ I sold the business (or my share of the business) and I incurred some debt (3)
  - ☐ I shut down the business, and I incurred no debt (4)
  - ☐ I shut down the business, and I incurred some debt (5)
  - ☐ I left the business with no payout, but my partner(s) kept the business going (6)
  - ☐ Other (please write in) : (7)
- 

-----

Q22 After you left this business, what did you do next?

- ☐ I started another business, which I am still associated with (1)
  - ☐ I started another business, but I am no longer associate with that business (2)
  - ☐ I took a job as an employee (3)
-

Q23 For the first business that you are no longer associated with, please select one of the following reasons why:

- ☐ I sold the business (or my share of the business) and I made a profit (1)
  - ☐ I sold the business (or my share of the business) and I incurred no debt (2)
  - ☐ I sold the business (or my share of the business) and I incurred some debt (3)
  - ☐ I shut down the business, and I incurred no debt (4)
  - ☐ I shut down the business, and I incurred some debt (5)
  - ☐ I left the business with no payout, but my partner(s) kept the business going (6)
  - ☐ Other (please write in) : (7)
- 

-----

Q24 After you left the first business, what did you do next?

- ☐ I started another business, which I am still associated with (1)
  - ☐ I started another business, but I am no longer associate with that business (2)
  - ☐ I took a job as an employee (3)
-

Q25 For the second business that you are no longer associated with, please select one of the following reasons why:

- ☐ I sold the business (or my share of the business) and I made a profit (1)
  - ☐ I sold the business (or my share of the business) and I incurred no debt (2)
  - ☐ I sold the business (or my share of the business) and I incurred some debt (3)
  - ☐ I shut down the business, and I incurred no debt (4)
  - ☐ I shut down the business, and I incurred some debt (5)
  - ☐ I left the business with no payout, but my partner(s) kept the business going (6)
  - ☐ Other (please write in) : (7)
- 

-----

Q26 After you left the second business, what did you do next?

- ☐ I started another business, which I am still associated with (1)
  - ☐ I started another business, but I am no longer associate with that business (2)
  - ☐ I took a job as an employee (3)
- 

Q33 Looking back on your entrepreneurial experience, would you describe any of your ventures or businesses to have been a failure? (in whatever way you define failure)

- ☐ yes (1)
- ☐ no (2)

---

Q27 How many total years of experience do you have as an entrepreneur?

- ☐ 1-2 years (1)
  - ☐ 3-5 years (2)
  - ☐ 5-10 years (3)
  - ☐ 10-20 years (4)
  - ☐ More than 20 years (5)
- 

Q28 Were either of your parents entrepreneurs?

- ☐ Yes (1)
  - ☐ No (2)
-

Q29 Please rate how you compare to your peers on the following:

	Much worse than my peers (1)	Slightly worse than my peers (2)	About the same as my peers (3)	Slightly better than my peers (4)	Much better than my peers (5)
Being able to solve problems (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing money (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being creative (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Getting people to agree with you (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being a leader (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Making decisions (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

-----

Q30 Please rate your level of agreement with the following statements:

	Strongly Disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
I like to take bold action by venturing into the unknown (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to invest a lot of time and/or money on something that might yield a high return (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tend to act "boldly" in situations where risk is involved (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often like to try new and unusual activities that are not typical but not necessarily risky (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tend to do things the same and not try different, unproven approaches (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer to try my own unique way when learning new things, rather than doing it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



like everyone  
else does (6)

I favor  
experimentation  
and original  
approaches to  
problem  
solving, rather  
than using  
methods others  
generally use  
for solving  
problems (7)

I usually act in  
anticipation of  
future  
problems,  
needs, or  
changes (8)

I tend to plan  
ahead on  
projects (9)

I prefer to 'step  
up' and get  
things going on  
projects rather  
than sit and  
wait for  
someone else  
to do it (10)

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

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Q31 What is your highest level of education?

- ☐ High school (1)
  - ☐ Some college (2)
  - ☐ Undergraduate (3)
  - ☐ Post-graduate (4)
- 

Q32 What is your gender?

- ☐ Male (1)
  - ☐ Female (2)
- 

Q32 What is your age range?

- ☐ Under 21 (1)
  - ☐ 21-30 (2)
  - ☐ 31-40 (3)
  - ☐ 41-50 (4)
  - ☐ 51-60 (5)
  - ☐ Over 60 (6)
-

Q33 Please specify your ethnicity

- ☐ White (1)
- ☐ Hispanic or Latino (2)
- ☐ Black or African American (3)
- ☐ Native American or American Indian (4)
- ☐ Asian/Pacific Islander (5)
- ☐ Other (6)



Q31 Based on the responses you have provided, we may wish to speak with you to find out more about your specific experiences. We would greatly appreciate it if you could please provide the best phone number for us to reach you, should we wish to contact you for a very brief follow-up call.

No identifying information about you or your responses will be shared in any way.

Please provide your preferred phone number with area code below:

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Q31 Please enter your name (so we know what to refer to you as, if we call you)

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Q32 What is generally the best time to reach you? (Select all that apply)

- ☐ Morning (1)
  - ☐ Afternoon (2)
  - ☐ Evening (3)
  - ☐ Weekends (4)
- 

Q29 Thank you very much for your participation in this important study. In appreciation, we would like to send you a Starbucks gift card in the amount of \$5.

Please provide your email address where the card can be electronically sent.

---

End of Block: Default Question Block

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## Appendix D: EPI Interview Questions:

*(Following some initial small-talk, and requesting permission to record and put on speaker)*

I'm going to read you a case study about an entrepreneur named Joe, and then I'm going to ask you a few questions about it. While I'm reading, try to imagine yourself in Joe's position.

This is a story about Joe. Joe is the founder and owner of a large global software company. He started the company 10 years ago, after having come up with an idea for a revolutionary software product. He started the company in his basement, working around the clock to develop the product, sell the idea to potential customers, and secure the necessary financing.

After an initial tough 2 years, the company experienced exponential growth once the product took off. After 7 years, the company hit its peak, with employees in offices all over the world. He was even profiled in the Wall Street Journal.

For the past 3 years, however, revenue and profit have been steadily declining. A competitor has entered the market with a better product and lower prices, and customers have been slowly leaving Joe's company or negotiating lower prices to stay with him. Joe has some ideas about how to improve his product to better compete, but the banks have refused to offer Joe any more financing.

He's had to lay off employees and close smaller offices. He has not taken a salary for himself in the past 3 years and has nearly drained all of his savings in order to meet the financial obligations of the company. He has tried to sell the company, but after several months, there are no offers. Both the company and he himself are very near bankruptcy.

Joe had no choice but to close down the company, which he announced to his employees, customers, and creditors. The banks are working with him to minimize his debt, but he has no immediate plans for employment, once he closes down the company. The Wall Street Journal ran a follow-up story about the rapid decline of the company and highlighted problems with his leadership as the problem.

- 1) Ok, so my first question is, What do you think went wrong here?
- 2) What do you think Joe is feeling right now?
- 3) For my next question, I'm going to give you 4 possible choices – pick the answer you think is best:

If you were Joe, what would you be thinking at this time? (*randomized order of responses*)

- a. If only I had not expanded into so many markets, I would have been able to improve my product, and I would still be running a successful company.
- b. If only the bank would have offered me more financing, I would have been able to invest in the product and turn the company around.
- c. Good thing I had shut down the company when I did, otherwise I would now have even more debt, and my reputation would never recover.
- d. At least the banks were willing to help me reduce my debt, otherwise I would be completely ruined financially.

4) Last question: If Joe goes on to start another business, do you think his next business will be more successful, less successful, or about the same level of success as this one?