Volume 22, Number 2

Print ISSN: 1087-9595
Online ISSN: 1528-2686

ACADEMY OF ENTREPRENEURSHIP JOURNAL

Editor

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THE DARK SIDE OF ENTREPRENEURSHIP: A CONCEPTUAL FRAMEWORK OF COGNITIVE BIASES, NEUTRALIZATION, AND RISKY ENTREPRENEURIAL BEHAVIOUR

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ABSTRACT

A significant concern among entrepreneurs is the high failure rates associated with new venture start-ups.These failures are often the result of cognitive biases that cause entrepreneurs to misperceive the risks associated with their ventures. However, in this research, I contend that cognitive biases do not directly lead to risky entrepreneurial behaviours, but rather indirectly through the techniques of neutralization. I further argue that the techniques of neutralization impact each stage in the decision-making process. Using the theory of planned behaviour and the theory of reasoned action as the theoretical foundation, a conceptual framework of cognitive biases, neutralization, and risky entrepreneurial behaviour is developed. Recommendations are offered to curb the instances of misperceived risk and areas of future study are suggested.

INTRODUCTION

The value of entrepreneurship to society has been well-documented in the extant literature (Smith,1776).Entrepreneurship stimulates employment, investment, and wealth creation opportunities by supplying products and services to consumers. Knowing the value of entrepreneurship, governments and universities are attempting to foster entrepreneurial behaviour in society. Although valuable if successful, but when ventures fail, the negative effects on the entrepreneur and their investors can be detrimental to society through the loss of employment, savings, and assets, leading in some cases to bankruptcy.

Indeed, one of the central issues with entrepreneurship is the high failure rates among new ventures. According to statistics from the extant literature, 20% of new ventures fail in the first year, 66% fail within the first six years (Hartcher, Hodgson, & Holmes,2003), and typically only 25% last more than 5 years (Kannadhasan, Aramvalarthan, & Kumar,2014). In general, it can be said that half of all new ventures fail (Simon, Houston, & Aquino,2000). However, approximately 95% of entrepreneurs believe that their ventures will succeed whereas at least 35% are certain of their success (Kannadhasan et al.,2014; Simon et al.,2000). Perhaps most concerning is that when new ventures are on the verge of collapse, the founders, for the most part, are unable or unwilling to perceive the risks. As a result, approximately 30% of entrepreneurs continue to spend resources on their failing ventures and over 50% continue spending after they receive sound advice that they should cease their operations (Astebro, Jeffrey, & Adomdza, 2007).

Compared to the average person, entrepreneurs are often more optimistic (Astebro et al., 2007) and, in general, have been shown to think differently (Busenitz & Barney, 1997; Kannadhasan et al., 2014; Palich & Bagby, 1995; Saravathy, Simon, & Lave,1998). Indeed, it appears that entrepreneurs are overconfident in their abilities (Kannadhasan et al., 2014; Keh,

Foo, & Kim,2002). As a result of their overconfidence and optimism, entrepreneurs are often unable to perceive the risks associated with their ventures and enter risky ventures unwittingly (Kannadhasan et al. 2014).

In their efforts to understand this problem, researchers have suggested that entrepreneurs perceive less risk as a result of cognitive biases, defined as "… systematic errors in human decision-making" (Fleischmann, Amirpur, Benlian, & Hess 2014, p. 2) or mental shortcuts used by individuals to make decisions (Simon et al.,2000). As a result of these cognitive biases, entrepreneurs make decisions based on subjective factors, such as their perceptions, and not necessarily objective facts (Busenitz & Barney, 1997; Kannadhasan et al.,2014), which contributes to the establishment of risky entrepreneurial ventures (Baron, 2004; Hayward, Shepherd, & Griffin, 2006; Kannadhasan et al., 2014; Simon et al.,2000). Put differently, entrepreneurs are overconfident and optimistic in their chances of success (Astebro et al., 2007; Baron, 2004; Kannadhasan et al., 2014; Keh et al., 2002) and make risky entrepreneurial decisions based on imperfect information (Busenitz & Barney, 1997; Otuteye & Siddique, 2013) using heuristics, which are "practical tools for simplifying decision making in a complex environment due to uncertainty, limited information and bounded rationality" (Otuteye & Siddique,2013, p.1). Indeed, the dark side of entrepreneurship is the cognitive processes of entrepreneurs that lead them to develop their ventures. Therefore, it can be said that entrepreneurs do not knowingly take high-risks, they, as a result of their cognitive biases; perceive less risk than other people (Simon et al., 2000).

In addition to cognitive biases, in this research, I argue that entrepreneurs neutralize the riskiness of their ventures through various techniques, namely the techniques of neutralization (Sykes & Matza, 1957). The techniques of neutralization are tools used by decision-makers to minimize the cognitive dissonance associated with making risky decisions. In the rationalization literature, it is well-documented that individuals make excuses for their risky decisions (Maruna & Mann, 2006), which is used to alleviate the negative feelings associated with their decisions. In other words, neutralizations are used by individuals to cope with the stress, anxiety, and dissatisfaction that occur from making bad decisions whilst maintaining one's self-esteem (Maruna & Mann, 2006). Through neutralizations, entrepreneurs are able to convince themselves (and others) that their actions are in fact not risky (Peretti-Watel, 2003), but rather sound business decisions, which causes them to fail in perceiving the riskiness of their ventures.

Although researchers have investigated cognitive biases within an entrepreneurial context, none have included rationalization, in general or neutralization techniques in particular, in the entrepreneurial decision-making process. In this research, I contribute to theory by including the techniques of neutralization within the entrepreneurial decision-making, risk, and cognitive bias research by developing a conceptual framework. Through this framework, I argue that cognitive biases do not directly lead to risky entrepreneurial behaviours, defined as risky business decisions, but rather indirectly through neutralization techniques. In the first section of this research, I outline the theoretical framework, which includes the theory of reasoned action (Ajzen, 1991), bounded rationality (Simon, 1955), and neutralization theory (Sykes & Matza, 1957), that forms the foundation of the model. In the subsequent section, the conceptual framework is described, in detail. Next, solutions are offered to facilitate entrepreneurial practice whilst future research directions are suggested.

THEORETICAL FRAMEWORK

The theory of reasoned action (TRA) and the theory of planned behaviour (TPB) are decision-making frameworks that have been used to explain various behaviours from consumer purchase intentions (Chatzidakis et al.,2007) to entrepreneurial decision-making (Krueger, Reilly, & Carsrud et al., 2000). In both the TRA and TPB, several steps, namely: (1) cognition (beliefs), affect (attitudes and judgment), and conation (intentions to behave) are followed, sequentially that lead to behaviour. In the extant literature, it has been contended that the intentions to perform an act can be extrapolated, with high-levels of accuracy, from attitudes and beliefs (Ajzen, 1991).

According to the first stage in the TRA, there are three types of salient beliefs, namely behavioural, normative, and control,which are considered to be important antecedents of attitudes. Behavioural beliefs are the perceived likelihood that an outcome (or consequence) will occur (Ajzen & Fishbein, 2000; Armitage & Conner, 1999). Normative beliefs involve the social norms that individuals in the entrepreneur's social milieu tend to follow. Put differently, normative beliefs are concerned with how one's referent group approve or disapprove of a particular action (Ajzen, 1991). Control beliefs involve an individual's perspective of their ability to control their outcomes (Ajzen, 1991). They include the potential factors that may hinder one's ability to perform the behaviour (Ajzen & Fishbein, 2000). It can be said that each of these three salient beliefs contain evaluative criterion that are the underlying determinants of an attitude toward behaviour (Ajzen, 1991; Ajzen & Fishbein, 2000).

In the TRA and TPB, attitudes involve how an entrepreneur judges a given behaviour. This is typically through evaluative perceptions of good or bad, right or wrong, suitable or unsuitable, and acceptable or unacceptable (Ajzen & Fishbein, 2000). Attitudes or judgments can be made expediently, intuitively, or reflexively (Reynolds, 2006), without much contemplation, or they can be made through considerable reflection (Ajzen & Fishbein, 2000). These attitudes, in turn, will influence an entrepreneur's intentions to perform a given behaviour. Intentions to act are contended to capture one's motivations to behave and they are the immediate antecedent of behaviour (Ajzen & Fishbein, 2000). From the extant literature, the higher that one's intentions are to behave, the greater the likelihood that the behaviour will be performed (Ajzen, 1991; Rest, 1986).

The TPB forms the foundation of most decision-making models (e.g., Rest, 1986); however, it does not account for the 'bounded rationality' of decision-makers and their inability to make perfectly rational choices. In other words, the model cannot be used to explain how individuals make irrational decisions. Conversely, Herbert A Simon (1955), the Nobel Laureate economist, argued that if social scientists are to understand how decisions are made, they should not be assumed to be logical, linear, or rational. According to Simon's research (1955), it has been argued that individuals possess limited decision-making abilities in that they are unable to process all the facts from their external environments (Schwenk, 1986; Zindel, Zindel, & Quirino, 2014). As a result of their decision-making limitations, entrepreneurs are incapable of interpreting the details accurately as they do not possess the cognitive capacity to do so (Schwenk, 1986; Simon et al., 2000).

In addition to these cognitive limitations, biases and errors in judgment further inhibit the ability of entrepreneurs to plan, think, decide, or behave in completely rational ways (Baron, 2004). Specifically, when individuals possess a belief and attitude toward a particular behaviour,

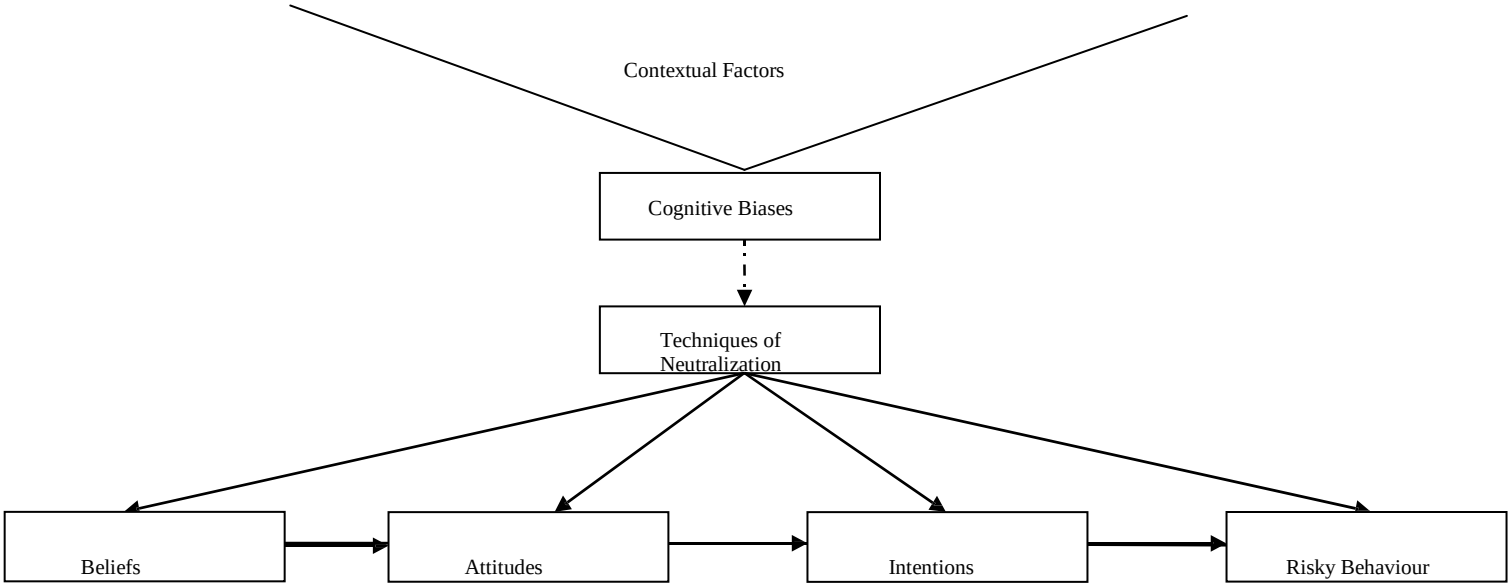
they likely will perceive information that is consistent with their beliefs toward said behaviour. For the most part, they will ignore or minimize any information that contradicts their beliefs (Baron, 2004). In other words, individuals will attempt to satisfy their immediate concerns and refrain from searching for alternative solutions to a problem that might actually be more value-maximizing then the one that addresses their immediate needs. These biases and errors are often associated with heuristics (i.e., mental shortcuts), which are used as a way to reduce uncertainty and simplify complex decisions (Sanchez, Carballo, & Gutierrez, 2011; Zindel et al.2014). Although heuristics can lead to successful decisions, they often lead to systematic errors (Yudkowsky,2008) and are subject to underlying cognitive biases (Keil et al.,2007) that influence the beliefs and judgments of entrepreneurs to start potentially risky ventures, unknowingly (Ajzen & Fishbein, 2000; Mitchell et al., 2007; Simon et al., 2000).

Beyond the use of heuristics, the decision-making process is context-specific and it is believed that contextual factors can influence one's beliefs (Ajzen & Fishbein,2000; Pomerol, 2003). Put differently, when an entrepreneur encounters a potential business venture and is considering investing resources toward it, he or she could be exposed to various biases, such as the illusion of control and optimism (Baron, 2004), and these contextual biases, could influence his or her accessible beliefs (Ajzen & Fishbein,2000). These beliefs should then affect the attitudes toward the behaviour and, subsequently, intentions that would lead to risky behaviour (Fleischmann et al., 2014).

As a result of the cognitive biases that influence the decision-making process, entrepreneurs often use various rationalizations or excuses to validate their decisions to themselves (and others). A common rationalization technique used by entrepreneurs is the denial of risk whereby they downplay or minimize the risk associated with their decisions (Perreti-Watel, 2003). Entrepreneurs seem to also rationalize by focusing on the potential strengths and opportunities associated with their ventures whilst ignoring, minimizing, or denying the weaknesses or threats. In the rationalization research, Sykes and Matza (1957) developed the techniques of neutralization from the criminology and delinquency literature. Neutralization techniques are used by individuals to minimize the negative feelings associated with their norm-violating behaviours. The traditional techniques of neutralization include: the denial of responsibility (I had no choice), denial of injury (no one was hurt), denial of victim (they deserved it), an appeal to higher loyalties (I did it for my family), and condemning the condemners (everyone else does it) (Sykes & Matza, 1957). Beyond the criminology literature, the techniques of neutralization have been applied across various disciplines, such as business ethics (Vitell & Grove, 1987), consumer ethics (Chatzidakis et al., 2007), professional industry protocol (Siponen & Vance, 2010), and marijuana use (Perreti-Watel, 2003).

Although it has been contended that cognitive biases influence one's beliefs and attitudes (e.g., Simon et al., 2000), in the neutralization literature, neutralization has been found to be intrinsic to the decision-making process. In fact, neutralizations are not only expected to influence each stage in the decision-making process, but they are also an important mediator in the TPB and TRA (Chatzidakis et al., 2007). Using this theory, in Figure 1, I demonstrate how the techniques of neutralization mediate the relationship between cognitive biases and risky decisions whereby the techniques of neutralization influence each stage in the decision-making process.

Figure 1
A CONCEPTUAL FRAMEWORK OF COGNITIVE BIASES, NEUTRALIZATION, AND RISKY ENTREPRENEURIAL BEHAVIOUR



A CONCEPTUAL FRAMEWORK OF COGNITIVE BIASES, NEUTRALIZATION, AND RISKY ENTREPRENEURIAL BEHAVIOR

In the conceptual framework of cognitive biases, neutralization, and risky entrepreneurial behaviour, it is contended that risky decisions are the result of the complex macro environment (i.e., the context that is associated with the enterprising decision) (Busenitz & Barney,1997), cognitive biases, and neutralization. Considering that many enterprising decisions are time sensitive, entrepreneurs often have to make expedient decisions (Busenitz & Barney,1997); however, these decisions are often a result of cognitive biases whereby entrepreneurs are unable to perceive all the relevant facts associated with the context (Zahra, Korri, & Yu,2005). Indeed, it is the context that contributes to the cognitive biases of entrepreneurs whereby they can be overconfident and optimistic about their ventures. These cognitive biases lead entrepreneurs to neutralize their perceptions of the venture whereby they minimize the uncertainty and risk associated with their decisions (Kannadhasan et al.,2014).

Importantly, entrepreneurs are capable of perceiving risks, but they simply believe in their abilities to hedge their ventures from risk whereby they deny its significance (Keh et al.,2002). In other words, it is not that entrepreneurs willingly take greater risks compared to other people. The issue is that through their cognitive biases and subsequent neutralizations, they do not perceive the riskiness of their behaviour (Hartcher, Hodgson, & Holmes,2003; Simon et al.,2000). In turn, entrepreneurs appraise and evaluate a given venture inaccurately (Kannadhasan et al., 2014) by perceiving it favourably (Keh et al., 2002) through each stage in the decision- making process.

Contextual Factors

Through several decision-making frameworks (e.g., Ferrell & Gresham, 1985; Jones,(1991) and empirical studies (O'Fallon & Butterfield, 2005), researchers have agreed on the importance of context to the decision-making process. Indeed, it is almost a truism that decisions are context-dependent (Pomerol,2003). In the entrepreneurship literature, the desire to be successful is dependent on the context of the venture in question (Ajzen,1991) where each context is different and, as a result, each decision to start a venture is influenced in a different way. When it comes to making the decision to start, invest in, or continue with a venture, entrepreneurs often, as a result of their bounded rationality, fail to perceive all the relevant facts associated with the context (Pomerol, 2003). Put differently, the extraction of the facts from the situation can lead to misperceptions where the weaknesses of a venture are ignored and the strengths are perceived as most salient (Pomerol, 2003). In general, entrepreneurs make risky decisions by: (1) misperceiving all the relevant facts and (2) drawing incorrect conclusions from well-evaluated facts (Pomerol, 2003).

These interpretations of the facts are influenced and advanced using cognitive biases that facilitate the initial misperceptions. Through the initial misperception, entrepreneurs will believe that their assessments are correct, which for the most part, are not necessarily based on facts (Kannadhasan et al., 2014). Indeed, cognitive biases are affected by problem recognition and the use of relevant information to make decisions (Keil et al., 2007).

Cognitive Biases

Cognitive biases are the result of heuristics that enable decision-makers to quickly arrive at decisions without processing all the facts (Kannadhasan et al.,2014). In the case of entrepreneurship, entrepreneurs use their cognitive biases to address information overload, high uncertainty, and time pressures to make decisions (Forbes, 2005). For the most part, they have to rely on intuition and reflexive decision-making when they make decisions to start new ventures (Reynolds, 2006; Woiceshyn,2009). However, because cognitive biases involve erroneous assumptions, they often inhibit effective decisions (Forbes, 2005; Otuteye & Siddique,2013).

Entrepreneurs are, for the most part, self-confident and possess high-levels of self-esteem, which contributes to their biases toward the outcomes of their ventures (Hayward et al., 2006; Kannadhasan et al., 2014; Majumdar, 2008). As a result of this, entrepreneurs undertake new ventures without properly calculating the potential risks (Kannadhasan et al.,2014). In general, there are six main cognitive biases that are used by entrepreneurs: (1) overconfidence (inability to know the limits of one's abilities) (Duening, 2010; Sanchez et al., 2011; Simon et al., 2000), (2) optimism (expecting that things will turn out well), (3) illusion of control (believing that one can control the outcomes of all decisions) (Keh et al.,2002), (4) planning fallacy (underestimating the length of time to perform a task) (Adomdza & Astebro, 2012; Kannadhasan et al., 2014), (5) hindsight bias (perceiving past events as more predictable than they were) (Sanchez et al., 2011), and; (6) escalation of commitment (where entrepreneurs pour good money after bad) (Astebro et al., 2007). As a result of these cognitive biases, entrepreneurs focus on the strengths and opportunities of a venture. By doing so, they might not perceive the potentially detrimental weaknesses and threats of their ventures and, ultimately, underestimate the risk (Simon et al., 2000). Through the underestimation of risk, entrepreneurs misinterpret relevant facts, make errors in judgment in that they pre-empt success, and start ventures unknowingly of the risk (Adomdza & Astebro, 2012; Hayward et al., 2006; Keh et al., 2002; Otuteye & Siddique, 2013; Simon et al., 2000; Tewari & Gupta, 1997).

From the extant empirical literature, there has been a positive relationship found between cognitive biases and risk perceptions leading to risky entrepreneurial behaviour (Adomdza & Astebro, 2012; Kannadhasan, 2014; Simon et al., 2000). However, others have contended that the cognitive biases might be indirectly related to risky entrepreneurial behaviour (Simon et al.,2000). According to the escalation of commitment bias, entrepreneurs have been known to continue with a venture after they have been informed that the venture will not only provide an inadequate return on investment, but that it will also surely fail (Adomdza & Astebro, 2012). In these cases, entrepreneurs neutralize their behaviour through self-justifications whereby "… an individual stays committed to justify a past decision (Astebro, Jeffrey, Adomdza, 2007, p. 256)". Even when new information has been presented that counters the facts extracted through the bias, the entrepreneur will ignore these facts or neutralize their original decision by seeking evidence that supports this initial claim (Keh et al.,2002). Therefore, it is suggested that the relationship between cognitive biases and risky entrepreneurial behaviour is not direct, but rather mediated, perhaps partially or fully, by the techniques of neutralization.

P1 *The techniques of neutralization mediate the relationship between cognitive biases and risky entrepreneurial behaviour.*

Techniques of Neutralization

According to cognitive dissonance theory, which is based on a psychological imbalance that individuals experience when their values are contradicted by their actions, individuals attempt to minimize their psychological discomfort through neutralizations (Jarcho, Berkman, & Lieberman, 2010; Maruna & Copes, 2004). If their values are compromised by their actions, entrepreneurs have an insuperable urge to rationalize them by creating an illusion that their initiative was informed by common sense and rationality (Fromm, 1955). To alleviate cognitive dissonance, individuals attempt to adjust their attitudes to match their behaviour through neutralizations (Jarcho et al., 2010). Simply put, the techniques of neutralizations enable decision-makers to give "… an acceptable 'reason' for an action, when the action really springs from unacceptable causes (Taylor, 1923, p. 410)".

Neutralization techniques are often referred to as ego-defence mechanisms that are used by decision-makers to 'window dress' their misgivings (Wang & Anderson, 1994) and, ultimately, minimize their negative emotions, such as feelings of inferiority, guilt, or embarrassment by maintaining the balance, psychologically (Joule, 1986). When entrepreneurs have encountered failures in their careers, as a result of their overconfidence, they often use the denial of responsibility neutralization technique by arguing that the causes of the failure were external and, not necessarily, the result of internal factors (Hartcher et al., 2003). Through this neutralization, entrepreneurs are able to protect their egos and minimize any psychological damage that is caused by the failure - effectively blaming the context (Hartcher et al., 2003) and making excuses for one's shortcomings (Wang & Anderson, 1994). Given their natural inclinations to overconfidence, entrepreneurs are likely to be more susceptible to neutralizations. Through the denial of risk neutralization technique, decision-makers attempt to convince themselves that there are limited risks associated with a venture (Peretti-Watel, 2003). To do this, entrepreneurs attempt to deceive themselves and others (Taylor, 1923) by restructuring their actions to appear less risky and benign (Moore, 2008). By doing this, they are focusing primarily on the opportunity and their strengths to capitalize on it. Indeed, it appears that entrepreneurs will use the denial of risk neutralization technique to justify their beliefs, attitudes, and intentions toward a particular behaviour.

It can be seen that the techniques of neutralization are rooted in the cognitive biases of the entrepreneur whereby they use various neutralization techniques to justify them. In other words, their cognitive biases form the basis of their neutralizations by becoming the foundation of their excuses. For example, entrepreneurs will use rationalizations that are based on overconfidence (I can do it), optimism (the strengths outweigh the weaknesses), illusion of control (success will come easily), or the denial of risk (Peretti-Watel, 2003) to downplay the risk associated with their ventures.

In reference to the decision-making process, it is expected that the techniques of neutralization will influence one's behavioural, normative, and control beliefs. Specifically, an entrepreneur will misperceive the venture by observing: positive outcomes associated with the venture (behavioural beliefs), that one's referent group will approve the venture (normative

beliefs), and that outcomes can be controlled by one's abilities (control beliefs). In their research, Chatzidakis et al. (2007) determined that the techniques of neutralization influence one's attitudes whereby people will judge a negative venture as positive, a bad decision as good, a wrong decision as right, and an unacceptable decision as acceptable. In the extant literature, the techniques of neutralization have been found to influence one's intentions to behave (Harrington, 1996) and, subsequently, influence the behaviour (Agnew, 1994). Indeed, the techniques of neutralizations affect each stage in the decision-making process, namely: beliefs, attitudes, intentions, and behaviour (Maruna & Copes, 2004; Sykes & Matza, 1957). Therefore, the following relationships are postulated.

P2a The techniques of neutralization are positively related to beliefs.
P2b The techniques of neutralization are positively related to attitudes.
P2c The techniques of neutralization are positively related to intentions.
P2d The techniques of neutralization are positively related to risky entrepreneurial behaviours.

CONCLUSIONS

In this research, I contribute to entrepreneurial theory by integrating the techniques of neutralization within the entrepreneurial decision-making process. This contribution is important as it can help explain how entrepreneurs make risky decisions. It has been proposed that cognitive biases are a function of contextual factors whereby entrepreneurs use heuristics to make expedient decisions and, subsequently, fail to perceive all the relevant facts. These cognitive biases fuel the neutralizations of entrepreneurs, which in turn, affect each stage in the decision-making process that ultimately leads to risky entrepreneurial behaviours. Through the conceptual framework of cognitive biases, neutralization, and risky entrepreneurial behaviour, it is argued that cognitive biases indirectly impact risky entrepreneurial behaviours through neutralizations, which lead to the failure of ventures.

To address this problem, there are several recommendations that entrepreneurs can implement to reduce the misperceptions of risk and eventual venture failures. First, entrepreneurs and prospective entrepreneurs should be trained on the types of neutralizations that are typically used to justify risky decisions (Maruna & Mann, 2006). This knowledge could be dispensed through universities and, also, the entities that fund start-up ventures, such as venture capital firms and business incubation centers. Through this endeavour, entrepreneurs should be in an improved position to be aware of how risky entrepreneurial decisions are framed (Moore, 2008). Second, decision support systems should be integrated within business incubation centers. Specifically, decision support systems force entrepreneurs to be aware of contextual factors by having them focus on the probability of failure associated with their ventures. Through this, entrepreneurs envision the potential events that can occur as opposed to focusing strictly on their biases (Pomerol, 2003). By doing this, entrepreneurs should not only be aware of the risks associated with their ventures, but they will also be in an improved position to develop contingency plans to hedge the risk. In consideration that entrepreneurs are typically unaware of their cognitive biases and how these impact their perceptions of contextual factors (Robertson, 2009), entrepreneurs should be made aware of them and how errors typically result from them (Zindel et al., 2014). Importantly, researchers and entrepreneurs alike should be aware of the fact that risky ventures are sometimes the most profitable and the recommendations suggested in this paper, should not be used to deter entrepreneurial activity. They should, however, be used to

assist entrepreneurs in making more calculated decisions with the ultimate hope of minimizing entrepreneurial failures.

Future Areas

To better understand the mechanisms that could be implemented to minimize the instances of risk misperceptions, there are several avenues that researchers can take by using the conceptual framework of cognitive biases, neutralization, and risky entrepreneurial behaviour as a theoretical platform. First, researchers should attempt to understand the stages in the decision-making process that are most susceptible to cognitive biases and neutralizations. Through this, researchers should be in an improved position to implement measures that can counter these sense-making techniques. Second, researchers should attempt to test the model in a cross-cultural environment to control for potential cultural forces that might influence the decision-making process. Specifically, individuals from collectivist cultures, such as Far East Asia, are heavily concerned with saving face compared to those from individualistic nations (Shafer et al., 2007).

As a result, collectivist cultures might be more susceptible to using ego defence neutralizations. Through this investigation, researchers should be in an improved position to understand if particular biases and neutralizations might be used by certain ethnicities and not others.

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CONTEXTUAL CONSIDERATIONS IN ENTREPRENEURIAL FINANCE EDUCATION: A SYSTEMATIC ANALYSIS OF U.S. UNDERGRADUATE COURSES

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ABSTRACT

As undergraduate institutions in the United States have expanded their offerings in entrepreneurship education, increasingly distributing them across the curriculum, the number of courses on the subject of Entrepreneurial Finance or Entrepreneurial Financing also has grown. In order to further the field's understanding of the content and pedagogies employed, apart from traditional Corporate Finance courses, this meta-analysis explores the prevalence of Entrepreneurial Finance courses in the curricula of universities offering entrepreneurship majors, analyzes course descriptions and syllabi, and proposes a typology of Entrepreneurial Finance courses including the modified corporate, public/private equity, and life cycle models. This typology is empirically tested and analyzed.

Empirical methods, including parsing terminology, factor analysis, and cluster analysis, are used to identify course clusters based upon course names, descriptions and syllabus topics. Differences between courses are calculated by running Multivariate Cluster Analyses using K-Means approaches to generate the optimal Cubic Clustering Criteria (CCC) under various conditions. We also conduct Factor Analysis for Principal Component/Varimax using Rotated Factor Loading.There are two primary clusters which are essentially the high growth venture/public/private equity model (17 courses or 30.9 percent) and all others (38 courses or 69.1 percent). The CCCs for two and three clusters are -3.7546 and -3.7885. Given that the larger number of clusters will routinely generate a somewhat higher CCC value, these are virtually identical. Therefore, we also conduct multivariate cluster analysis on the larger cluster and identify two clusters, falling into the modified corporate and life cycle models. Cluster analysis generates some difference from the initial parsing results. The overall results suggest that course strategy may be a function of the institution type when considered by AACSB accreditation and public/private institution status. The departments in which the courses are situated matter. Examples of the predominant syllabus topics for each model are compiled and presented. Texts and teaching pedagogies are analyzed to provide insights.

Opportunities for further investigation are identified. With entrepreneurial finance as an emerging sub-discipline, empirical evidence on entrepreneurs' special needs could be helpful to those structuring courses or writing texts for this area of entrepreneurship education.

INTRODUCTION

Experience and admissions data demonstrate that a significant number of people are entering business schools to learn about entrepreneurship and there is a growing acceptance that elements of entrepreneurship can be taught and learned (Gottleib and Ross, 1997; Henry et al., 2005a, 2005b; Klein and Bullock, 2006; Samwel Mwasalwiba, 2010). Although entrepreneurship education is relatively new to higher education, it is among the most rapidly expanding fields of study in colleges and universities in the United States (Kuratko, 2006; Neck and Greene, 2011; Solomon, 2007). The field of university-based entrepreneurship education has expanded and the participating institutions in this growth have substantial accumulated knowledge (Glackin, 2004).

Numerous scholars have looked at entrepreneurship education writ large and explored its value and trajectory (Fayolle, 2008: Haase and Lautenschläger, 2011; Katz, 2003; Lautenschläger and Haase, 2011). Recently, significant efforts to integrate entrepreneurial principles into disciplines and fields of study outside of business schools have emerged across the higher education landscape (Katz, 2003; Kuratko, 2006; Mars, 2007). The growth and evolution of entrepreneurship education has also strengthened the entrepreneurial capacity of the student to launch business ventures -- both economic and social -- out of colleges and universities and into the marketplace (Mars et al., 2008). In short, the expansion of entrepreneurship education warrants ongoing attention from scholars, administrators, and practitioners.

At the same time, a growing body of research on the value of entrepreneurial education is emerging (Gibb, 2002; Matlay and Mitra, 2002; Adcroft et al., 2004) that cautions against entrepreneurship education being treated solely as another additional teaching area in business schools. Entrepreneurial education is an opportunity to address some of the contemporary needs of business education in ways that the traditional business education system does not (Adcroft et al., 2004; Mitra, 2002). Additionally, the concept of entrepreneurship across the campus has taken root, adding a general education dimension (D'Intino et al., 2009). This adds up to a need for analysis of course content and overall pedagogy.

As the field of entrepreneurship education has evolved, critical content areas have emerged. Chief among these is opportunity identification which has been recognized as an essential capability of entrepreneurs and has become an important element of the scholarly study of entrepreneurship (Ardichvili et al., 2003; Gaglio and Katz, 2001; Shane and Venkataraman, 2000). Entrepreneurial finance and financing is a crucial topic for nascent entrepreneurs to study, as appropriate financial planning and management are essential for survival and success (Anderson et al., 2005). Venture financing is also a unique capability that should be included in entrepreneurship education content and the question becomes "how" or what are the pedagogical methods that will increase an individual's ability (DeTienne and Chandler, 2004) to understand emerging venture finance. While prior studies have been conducted on the pedagogy for teaching corporate finance (Farooqi and Saunders, 2004; Saunders, 2001, 2002), no comprehensive analysis of entrepreneurial financing courses has been completed.

Much of the empirical work on entrepreneurial finance has focused on relatively large entrepreneurial enterprises or high growth firms. The ways in which large and small firms obtain funds differ significantly (Fluck et al., 1998). Currently, few researchers focus their studies on how and what approaches to education best apply to the full range of ventures.

As the number of academic institutions offering undergraduate majors in Entrepreneurship has grown, the number of Entrepreneurial Finance courses would be expected to grow proportionately. However, the inclusion of courses on the subject does not appear to be

as widespread as that of Corporate and Managerial Finance courses in business majors. It likely would be nearly impossible to find a business degree that does not require at least one course on the topic. While the acquisition and management of financial resources is a critical and time-consuming role for entrepreneurs, it may not be given proportionate attention in entrepreneurial coursework. Thus, we posed the question of the prevalence of courses.

The primary purpose of the study is to identify the universities that have Entrepreneurial Finance courses and to categorize and describe the pedagogical approaches used in these courses. The two principal topics examined are the extent to which Entrepreneurial Finance courses exist in business schools and what the dominant routes of instruction are. The first part provides the areas to be explored and the purposes for this study. The second part defines the methodology used to analyze the courses and institutional data. The third part provides the findings and discusses in greater detail how courses are classified and focuses on analysis of the data. We provide examples of university courses and course topics for each of the types of courses. The fourth part summarizes the results, highlights the challenges in classifying some of the courses, emphasizes the consequences, and suggests opportunities for further research.

BACKGROUND

Classification and identification of subgroup characteristics have been the foundation of scientific enquiry in general (Manimala, 1996). Looking for universally applicable principles and/or characteristics in entrepreneurship research is no exception. The critical nature of the acquisition and management of financial resources for entrepreneurial ventures suggests that Entrepreneurial Finance courses for undergraduate entrepreneurship student majors should be universal in U.S. entrepreneurship programs.

Entrepreneurial Finance pedagogy can follow multiple paths with two seemingly dominant routes being (1) high-growth businesses with potential for an initial public offering (IPO) and (2) modification of corporate finance education to adjust for differences in entrepreneurial ventures. As Coleman (2004) notes, topics in corporate finance are typically addressed and refined to adapt them to entrepreneurial firms when Entrepreneurial Finance is taught. Observation suggests that the prevalent pedagogy is more akin to traditional corporate finance and its approach to capital markets than to the breadth and depth of finance and financing issues faced by entrepreneurial ventures throughout the life cycle or the needs to high growth ventures. Most entrepreneurs do not create businesses with the first option as their goal (Kuratko, 2006) and many of the topics in corporate finance are of less import to entrepreneurs (Anderson et al., 2003). We suggest a third route, that of addressing topics regarding financing and financial management across the entire spectrum of small business and entrepreneurial ventures throughout their life cycles may be a best practice for the preponderance of students of entrepreneurship.

We seek to augment our understanding of entrepreneurship faculty professorial choices among these arrangements. To increase our understanding of pedagogies and course content, we utilize a unique primary dataset created through a process described below. Reliance is placed on observables to isolate patterns and make inferences about which hypotheses are more consistent with reality.

METHODOLOGY

The objective of this applied research is to introduce the reader to an organizing framework as well as the content of the courses addressing Entrepreneurial Finance. The research implements a protocol that adopts a broad definition of Entrepreneurial Finance. The sampling method produces a representative range of course offerings. The research method includes a purposive sample to create a representative sample of courses. Sampling is from a known population, namely publicly available college and university entrepreneurship programs. The standardized definitions and representative samples allow reliable comparisons across types of courses. A distinctive feature of this data set is that it contains information unavailable in aggregated form elsewhere.

To better understand the prevalence of Entrepreneurial Finance courses among U. S. colleges and universities, and to analyze their pedagogies, the authors identified a universe of programs, conducted research and compiled data on course offerings, and collected course syllabi for analysis. The review of U.S. institutions in the initial sample consisted of those listed on the St. Louis University *List of Colleges with Majors in Entrepreneurship or Small Business* (Katz, 2011) which is a comprehensive list of colleges and universities with undergraduate entrepreneurship majors compiled from multiple sources. Additionally, lists from the Princeton Review's compilation of the *Top 25 Undergraduate Colleges (in entrepreneurship) for 2010* (Juergen, 2011) and a College Board search of undergraduate institutions with majors in entrepreneurship or small business were incorporated for a total of 266 institutions.

For each of these institutions, the organization Web site was searched for any entrepreneurship major course requirements or electives and for courses with a combination of the keywords *entrepreneurial*, *venture*, *small business*, and *finance*, *financing* or *financial management* in the title. Course descriptions were found and recorded. For each undergraduate course identified, a syllabus was retrieved from the institution's Web site or the faculty member Web site, as available. For each syllabus that could not be retrieved electronically, an email request was sent to the identified faculty member, the appropriate department or the institution's entrepreneurship center, depending upon the contact information available. If an initial contact referred the researchers to another contact, additional follow-up emails were sent.

Data was compiled from the available Web resources and syllabi to include such variables as: course description, course objectives, topics, required and optional materials, and assessment methods. Ultimately, 266 U.S. colleges and universities were included. Of these institutions, 147 had courses matching the search criteria with a total of 151 courses due to multiple courses at a few institutions. A total of 56 syllabi were collected and analyzed. Table 1 identifies the key features of the sample.

Prior research has noted that entrepreneurial firms go through various "stages" of growth and that different sources of capital are appropriate at different stages (La Rocca et al., 2011). As a corollary, a number of researchers have pointed out that different types of capital are appropriate for different stages of firm development (Berger and Udell, 1998; Walker, 1989).

The schema for distinguishing between pedagogies to determine the most effective approach for students (Shepherd, 2004) was initiated in the groundbreaking work of Susan Coleman.

> Often however, the theories developed to explain corporate finance behavior are not entirely applicable in entrepreneurial situations. Thus modifications and refinements of existing corporate finance theory become necessary and

appropriate to explain the behavior of entrepreneurial firms and their owners. (Coleman, 2002)

Table 1 SAMPLE PROFILE	
Number of U.S. Institutions Identified	266
Sample Institutions Offering a Minimum of One Entrepreneurial Finance Course (n=147)	55.3%
AACSB Accredited Institutions (n=147)	68.7%
Courses Identified	151
Syllabi Acquired (n=56)	37.1%
AACSB Accredited Institutions in Syllabus Sample (n=55)	82.1%
Public Institutions in Syllabus Sample (n=55)	56.4%
Enrollment in Sample Institutions (n=52)	
<1,000	1.9%
1,000 – 4,999	11.5%
5,000 – 9,999	26.9%
10,000 – 20,000	21.2%
>20,000	38.5%
Course Placement by Subject Area (n=56)	
Entrepreneurship	30.4%
Finance	51.8%
Management	12.5%
Other	5.3%

Having collected the institution name, course name and course descriptions for 151 courses, we parsed the data to identify patterns and to better understand the sample. The initial classifications of *modified corporate, public/private equity* and *life cycle* models were tested through this process.

By parsing the course descriptions using the keywords *corporate finance*, *finance theory* and *financial principles* the first group was identified. We labeled this the *modified corporate* model. The *modified corporate* model includes the courses with names such as Entrepreneurial Finance and Small Business Finance with objectives and topics aligning closely with those of Corporate/Managerial Finance instructional models.

The *public/private equity* model is dominated by courses entitled Venture Finance and New Venture Finance, as well as some with the name Entrepreneurial Finance that focus on the processing of preparing a company for a significant private or public offering, often with a transactional approach. Keywords used to identify these courses include *venture finance*, *initial public offering*, *private equity* and *venture capitalists* without using words describing a range of options. The third model, called the *life cycle* model, was defined by keywords such as various aspects of *financing*, *entrepreneurial process*, broad range, stage of the entrepreneurial process, and commonly used means of funding.

The data present an opportunity to further analyze course topics by classification and assemble models of course topics pertinent to a single semester course in Entrepreneurial Finance. While some courses do not fall precisely within the bounds of one type or another based upon the course description alone, analysis of specific topic introduced reinforces classifications and provides insights into differences.

Additional quantitative analysis was conducted using the 56 syllabi collected. All were coded first according to the categories identified by Anderson et al. (2003) in their analysis of the financial education needs of entrepreneurs and identified by select entrepreneurs and financial advisors. These 30 codes were insufficient for the breadth and depth of topics included in academic courses in Entrepreneurial Finance, so that 38 codes were added. The syllabi were coded according to topics included, the texts used, and the inclusion of tests, case studies, projects, presentations, and participation in grading. As a result, 55 syllabi were included in the analysis of topics and 54 in the remaining analysis, due to missing data.

To test the hypothesized classification schema, empirical analysis was employed. The first screen conducted was factor analysis and the second was cluster analysis. We conducted Factor Analysis for Principal Component/Varimax using Rotated Factor Loading. Then, having completed the analysis, differences between courses were calculated by running Multivariate Cluster Analysis using the K-Means approach to iteratively generate the optimal Cubic Clustering Criteria (CCC). This was run with columns having common scale and determining binary frequency data. We also used a Johnson Transform to balance any highly skewed variables. We identified the mean scores by cluster for the resultant clusters to better understand the differences between the clusters. To add value for instructors, we tabulated the textbook, pedagogy, and grading information. Finally, we examined the relationships between the contextual factors and the models.

The use of multiple methods supports understanding of the variations in Entrepreneurial Finance education to assist the field in developing models appropriate to learning objectives. It also provides information for instructors who are creating and/or delivering such courses.

RESULTS AND DISCUSSION

The initial distribution of courses between the modified corporate, public/private equity, and life cycle models held up well through the parsing of course names and descriptions. However, the factor and cluster analyses suggest that the hypothesis does not hold when collected syllabi were analyzed by the more detailed level of topics.

Initial parsing of the data results in a distribution of courses between the categories identified in this study is 39.1 percent modified corporate, 27.8 percent public/private equity, and 33.1 percent life cycle. These 151 courses reflect just over half of the institutions in the sample, as a narrow majority of the institutions had undergraduate Entrepreneurial Finance courses. Specific course names vary significantly and the contents are diverse within similar names. There are 75 course name variations among the 151 courses. Of these, 47 courses (31.1 percent) are named Entrepreneurial Finance, but their descriptions and contents are sufficiently diverse as to warrant three separate classifications. The next five most frequent names comprise another 27 courses (17.9 percent), such that 49 percent of all courses are encompassed by six different names. Table 2 lists the non-unique names of courses and the numbers of their fit within this typology.

Factor analysis using Principal Component/Varimax Rotated Factor Loading conducted on the topics included in the 56 syllabi that were collected showed that the most important distinguishing factors in this dataset were instruction in financial statements, cash flow management,business legal forms, business plans, and forecasting. The Eigen Value for component 1 was 5.5051 and the next value was 1.2935. While this provided some insight into the differences in the dataset, it did not provide sufficient assistance in finding meaning.

As is shown in Table 3, the Multivariate Iterative Clustering using K-Means Clustering resulted in a slightly more optimal CCC for a two cluster model than for a three cluster one. However, given the normal increase in CCC that occurs as the number of clusters increases, this is virtually identical. Based upon the optimal CCC calculated by this method with columns having a common scale, the hypothesis that the optimal number of approaches to Entrepreneurial Finance courses is three was not definitively confirmed. The larger of the two clusters was run through the same analysis and arrived at two clusters rather than one. Given the small difference in the CCCs in the initial case, we recommend continuing to consider three methods, although they do not line up precisely with the results of parsing the 151 courses. This is not unexpected, given that we were working with a subset of the sample frame and were empirically analyzing more detailed information.

Table 2
COURSES NAMES (NON UNIQUE) & INITIAL TYPES (N=151)

Course Name	Total Listed	Modified Corporate	Life Cycle	Public/Private Equity
Entrepreneurial Finance	47	21	15	11
New Venture Finance	9	1	2	6
Financing Entrepreneurial Ventures	6	1	4	1
Small Business Finance	5	3	2	
Financing the Entrepreneurial Venture	4	1	2	1
New Venture Financing	3			3
Accounting & Financial Concepts for Entrepreneurship	2	2		
Entrepreneurial & Small Business Finance	2	2		
Entrepreneurial Financial Management	2	1	1	
Finance for Entrepreneurs	2	2		
Financing New Ventures	2	1		1
Funding New Ventures	2		2	
Venture Capital Finance	2			2
Venture Financing	2	1	1	

Table 3
ITERATIVE CLUSTERING – CLUSTER COMPARISON USING K-MEANS CLUSTERING

Number of Clusters	CCC	Best
2	-3.7546	Optimal CCC
3	-3.7885	
4	-4.3466	
5	-4.7502	

There were substantial differences between Cluster 1 with 38 courses and Cluster 2 with 17 of them. Cluster 2 is dominated by topics that pertain to high growth, scalable businesses such as would be included in the Public/Private Equity model. They constitute 30.9 percent of the courses. Table 4 shows the mean scores for the initial cluster analysis for all variables with a difference of 0.1 or greater. When we ran the "clusters of the cluster" for Cluster 1, the results

Table 4
MEAN SCORES – INITIAL CLUSTER ANALYSIS

Topic	Variable	All others	Public/Private Equity	Diff (2-1)
Financing sources	N(SOURCES)	1.29	0.47	-0.82
Financial statement analysis	N(STATEANL)	0.87	0.12	-0.75
Business plans	N(BIZPLAN)	0.74	0.29	-0.45
Business legal forms	N(BIZFORM)	0.39	0.06	-0.33
Financial statements	N(FINSTATES)	0.55	0.29	-0.26
Idea to business plan	N(IDEATOBP)	0.21	0	-0.21
Forecasting	N(FCSTG)	0.42	0.24	-0.18
Debt	N(DEBT)	0.29	0.12	-0.17
Cash flow management	N(CSHMGMT)	0.39	0.24	-0.15
Distressed businesses	N(DISTRESS)	0.21	0.06	-0.15
Breakeven analysis	N(BREAKEVN)	0.11	0	-0.11
Financial planning	N(FINPLAN)	0.11	0	-0.11
Personal finances	N(PERSFIN)	0.11	0	-0.11
Angel investors	N(ANGELS)	0.08	0.18	0.1
Opportunity recognition	N(OPPTYREC)	0.08	0.18	0.1
Risk and return	N(RISKRETURN)	0.08	0.18	0.1
Strategy	N(STRATEGY)	0	0.12	0.12
Leveraged buyouts	N(LBO)	0.03	0.18	0.15
Private equity	N(PRIVEQ)	0.18	0.35	0.17
Deal structures	N(DEALSTRC)	0.16	0.35	0.19
Early stage financing	N(EARLYFIN)	0.05	0.24	0.19
Intellectual property	N(INTPROP)	0.03	0.24	0.21
Due diligence	N(DUEDILIG)	0	0.24	0.24
Term sheets	N(TERMSHET)	0.16	0.41	0.25
Real options	N(OPTIONS)	0.03	0.29	0.26
Mergers & acquisitions	N(MERGACQUI)	0.08	0.35	0.27
Initial public offerings	N(IPO)	0.11	0.53	0.42
VC industry	N(VCIND)	0.05	0.65	0.6
Venture capitalists	N(VC)	0.42	1.06	0.64
Valuation	N(VALUATN)	0.68	1.41	0.73

Table 5
MEAN SCORES – SECONDARY CLUSTER ANALYSIS

Topic	Variable	Modified Corporate (a)	Life Cycle (b)	Diff (b-a)
Financing process	N(PROCESS)	0.63	0.07	-0.55
Forecasting	N(FCSTG)	0.54	0.21	-0.33
Business plans	N(BIZPLAN)	0.83	0.57	-0.26
Management	N(MGMT)	0.29	0.07	-0.22
Financial principles	N(FINPRINC)	0.21	0.00	-0.21
Financial statements	N(FINSTATES)	0.63	0.43	-0.20
Private equity	N(PRIVEQ)	0.25	0.07	-0.18
Cash flow management	N(CSHMGMT)	0.46	0.29	-0.17
Industry environment	N(INDENVRN)	0.17	0.00	-0.17
Time value of money	N(TVM)	0.17	0.00	-0.17
Opportunity recognition	N(OPPTYREC)	0.13	0.00	-0.13
Risk and return	N(RISKRETURN)	0.13	0.00	-0.13
Debt	N(DEBT)	0.33	0.21	-0.12
Bankruptcy	N(BANKRUPT)	0.00	0.14	0.14
Initial public offering	N(IPO)	0.04	0.21	0.17
Financial planning	N(FINPLNG)	0.00	0.21	0.21
Financing plans	N(FINPLAN)	0.00	0.29	0.29
Term sheets	N(TERMSHET)	0.04	0.36	0.32
Harvesting	N(HARVEST)	0.25	0.64	0.39
Overview	N(OVERVIEW)	0.25	0.64	0.39
Distressed businesses	N(DISTRESS)	0.04	0.50	0.46
Idea to business plan	N(IDEATOBP)	0.04	0.50	0.46
Venture capital	N(VC)	0.21	0.79	0.58
Securities law	N(SECLAW)	0.00	0.64	0.64
Valuation	N(VALUATN)	0.42	1.14	0.73
Legal business forms	N(BIZFORM)	0.08	0.93	0.85
Financial statement analysis	N(STATEANL)	0.54	1.43	0.89
Financing sources	N(SOURCES)	0.75	2.21	1.46

also showed some clear differences of means between variable. Table 5 shows the mean scores for the secondary cluster analysis for all variable with a difference of 0.1 or greater. There are 24 institutions in Cluster 1a and 14 in Cluster 1b, equivalent to the *modified corporate* and *life cycle* models.

In order to better understand how the differing models compare in terms of course topics as they might be applied in creating or modifying a course, Table 6 shows the most prevalent topics by classification, in a suggested order of presentation. Clearly, each faculty member will

select the best order and contents for their course. However, this a starting point for building or restructuring a course. Table 7 identifies course pedagogies and assessment types as they are applied in AACSB institutions and all others. Case studies are more common and presentations less so among *public/private equity* (high growth) courses, all taught at AACSB institutions, than projects which are generally more frequently used. Participation is included in grading in 83.3 percent of the high growth courses and only in 60.9 percent of the *modified corporate* ones. We suggest this is because *modified corporate* courses are more like traditional, lecture-based finance classes, although this analysis cannot be completed with the current data. The *life cycle* courses have the strongest inclusion of tests/quizzes and projects.

Table 6
COMPOSITE COURSE TOPICS BY MODEL

Modified Corporate	Life Cycle	Public/Private Equity
Overview and Introduction to Entrepreneurial Finance	Overview and Introduction to Entrepreneurial Finance	Overview and Introduction to Entrepreneurial Finance
Opportunity Recognition	Legal Forms of Business	Financial Statements
Financial Statements	Idea to Business Plan	Business Plan Development
Analysis of Financial Performance	Business Plan Development	Cash Management & Cash Flows
Financial Principles	Financial Planning	Forecasting
Forecasting and Budgeting	Financial Statements	Valuation
Cash Management & Cash Flows	Analysis of Financial Performance	Financing Process
Breakeven	Cash Management & Cash Flows	Sources of Financing
Risk & Return	Forecasting and Budgeting	Early Stage Financing
Business Plan Development	Valuation	Private Equity
Financing Process	Sources of Financing	Venture Capital Industry
Industry Environment	Debt Financing	Venture Capital
Valuation	Venture Capital	Deal Structuring & Term Sheets
Time Value of Money (TVM)	Deal Structuring	Real Options
Sources of Financing	Term Sheets	Intellectual Property
Debt Financing	Legal Issues in Venture Finance: Securities Laws	Initial Public Offering
Private Equity	Harvest Strategies	Mergers & Acquisitions
Venture Capital	Initial Public Offering	Due Diligence
Harvest Strategies	Distressed Business Options	Managing the Business

Table 7
FORMS OF ASSESSMENT AND LEARNING USED BY TYPE

Type	Modified Corporate	Life Cycle	Public/Private Equity	Total
Tests/Quizzes	91.3%	92.3%	83.3%	88.9%
Participation	60.9%	76.9%	83.3%	72.2%
Projects	56.5%	69.2%	61.1%	61.1%
Case Studies	52.2%	61.5%	66.7%	59.3%
Presentations	56.5%	61.5%	44.4%	53.7%

Of additional interest to instructors is the selection course materials. The five most frequently used texts at the time of data collection (cited by most recent edition) in order of frequency were: Leach and Melicher (n=17); Smith and Smith (n=5); Adelman and Marks (n=3); Metrick (n=3), and Timmons and Spinelli (n=2). The remaining courses used a variety of texts,

faculty-created course packs, and case study sets. Since data was collected, Cornwall and Vang have published their text through Routledge and Vega and Lam have published a new text. The data were not sufficiently complete to permit determination of the range of courses and simulations used in Entrepreneurial Finance courses.

The institutional context in which these course models appear is important to understanding the differences in approach. Table 8 includes lists of the institutions sorted by modified corporate, life cycle, and public/private equity as determined through the Cluster Analyses. Status as an AACSB accredited institution and as a private institution is indicated for each.

Table 8
INSTITUTIONS BY ENTREPRENEURIAL FINANCE COURSE TYPE

Modified Corporate	Life Cycle	Public/Private Equity
Baylor University*	***Brigham Young University****	***Babson College****
California State University, Fullerton	California State University, Dominguez Hills	**California State University, Fresno**
Central Michigan University	**Chapman University***	**Carnegie Mellon University***
College of Charleston	**Eastern Michigan University**	**Duquesne University***
College of the Atlantic*	Gannon University*	**Elon University***
Grand Valley State University	Grove City College*	**Idaho State University**
Hampton University*	**Illinois State University**	**Louisiana State University**
Indiana University- Bloomington	Lindenwood University*	**Massachusetts Institute of Technology***
Northeastern University*	**Oklahoma State University**	**New York University***
Salem State University	**Rowan University**	**Northwestern University***
San Diego State University	**University of Illinois at Chicago**	**Stanford University***
Sierra Nevada College*	University of Texas at Brownsville	***Temple University***
Syracuse University*	**University of Toledo**	***University of Arizona***
Tulane University*	**Washington State University**	**University of California, Berkeley**
University of Arkansas at Little Rock		**University of Colorado at Boulder**
University of Baltimore		**University of Pennsylvania***
University of California, Santa Barbara		**University of Texas at Austin**
University of Hartford*		
University of Houston		
University of Iowa		
University of Maryland		
University of Massachusetts Amherst		
University of Notre Dame*		
University of Texas at El Paso		

AACSB Accredited institutions are in bold. Private institutions have an (*). Top 25 programs in entrepreneurship are indicated in italics (Juergen, 2011).

When looking at the composition of the clusters by institutions, some interesting patterns are apparent. This is more completely displayed in Table 9. The *public/private equity model* consists entirely of AACSB accredited institutions and is equally divided between public and private institutions. Three of the 17 institutions are listed in the Top 50 for Entrepreneurship. This group also includes institutions that are widely recognized for their focus on technology and

high growth ventures, so it is not surprising for them to focus on financing models appropriate to such ventures. The *modified corporate group* is more diverse with 79.2 percent AACSB accredited institutions, five Top 50 schools, and 37.5 percent private institutions. The smallest cluster, called the *life cycle model*, includes 64.3 percent AACSB accredited institutions, one Top 50 school, and 28.6 percent private institutions. In fact, Chi Square analysis shows the only independent variable that has a relationship with the model type is AACSB accreditation. However, the results are not significant.

Table 9
INSTITUTIONAL SUMMARY STATISTICS BY COURSE TYPE

	Modified Corporate	Life Cycle	Public/Private Equity
AACSB Accredited	79.2%	69.2%	**100.0%**
Public Institutions	58.3%	**69.2%**	42.1%
Top 25 Undergraduate Entrepreneurship Program	**20.8%**	7.7%	15.8%
Size of Institution			
Mean	16040	12456	**16416**
Median	**14542**	12022	12143
Minimum	378	2509	2107
Maximum	36419	27163	39523
Standard Deviation	10620.8	7647.6	11375.1
Standard Error	2168.0	2121.1	2609.6
Average SAT Score			
Mean	1152	1066	**1288**
Median	1155	1040	**1290**
Minimum	935	850	1000
Maximum	1430	1260	1500
Standard Deviation	145.3	115.6	38.9
Standard Error	31.0	32.1	160.5

This distribution of course types is logical if the courses were created to fit the institutional context and the needs of the student populations. Clearly, the *public/private equity* type is distinguished by the 100 percent AACSB accreditation and the 57.9 percent private institution rate, as well as the highest average SAT score. Interestingly, this group also has the highest minimum and maximum average SAT scores. The *life cycle* model includes the lowest percentage of AACSB accredited institutions (69.2 percent), the greatest number of public institutions (69.2 percent), and the lowest median SAT scores. The *modified corporate* model sits squarely in the middle for most factors with the distinction of having the highest percentage of top programs (20.8 percent) and the largest median undergraduate student population. It will require further study to determine whether other characteristics of the students or institutions define the course classifications. For example, the focus on engineering and high grow ventures in general at the institutions offering *public/private equity* models courses may be the most significant driver. Students at the public universities may simply be more interested or more likely to succeed in small businesses or life style businesses and the course models may reflect this. In addition, where courses are placed in an institution's curriculum is a strategic and tactical choice. The faculty teaching courses bring the perspectives of their education, training and experiences to the classroom. Thus, we investigated where the courses were placed in the institutions. A summary of placement of courses by department/course prefix is shown in Table 10. Just over half (51.8 percent) of all Entrepreneurial Finance courses have finance prefixes.

Interestingly, the lowest proportion of them is in *modified corporate* and the highest proportion is in *public private equity* with *life cycle* equally balanced. *Life cycle* courses are far more likely to be situated within entrepreneurship itself.

Table 10
COURSE DEPARTMENT/PREFIX PLACEMENT BY TYPE

Placement	Modified Corporate	Life Cycle	Public/Private Equity	Total
Entrepreneurship	29.2%	42.9%	22.2%	30.4%
Finance	**45.8%**	**50.0%**	**61.1%**	**51.8%**
Management	12.5%	7.1%	16.7%	12.5%
Other	12.5%	0%	0	5.3%
n=	24	14	18	56

The contextual factors that matter according to this analysis include: the institutional setting (public/versus private), the AACSB accreditation status, and the department(s) in which the courses are situate. The textbooks used could either be the drivers of the content in the syllabi or the desired content could drive the selection of textbooks. Ultimately, faculty and programs must determine the focus and content of each course.

CONCLUSION AND IMPLICATIONS

Taxonomies based on empirical data are not expected to generate neat and mutually exclusive categories as in a conceptual classification (Manimala, 1996). It is possible to try and reconcile some of these taxonomies with a view to developing hypotheses on entrepreneurial (finance) subtypes (Manimala, 1996).

Most undergraduate finance courses emphasize the financial management of publicly traded corporations with a brief acknowledgement of other forms of business. Courses are created under the assumption that students will be working for major corporations and that they have had several courses in accounting (Adelman and Marks, 2013). These may be valid assumptions; however, the course content and pedagogies may not always apply to a small or emerging business. In addition, these finance courses typically do not provide specific examples for the non-corporate market. While much of traditional financial analysis may not be ideally suited to the venture context, there is great value in applying venture adaptations (Leach and Melicher, 2015).

Within the context of entrepreneurial ventures there is a range of approaches that are utilized. We have identified three streams: an “adaptive version” of traditional corporate finance or *Modified Corporate*; a “financial relationship focused” or *Public/ Private Equity* and a “stage sensitive” (Leach and Melicher, 2015) or *Life Cycle* approach.

In this analysis, we focus on vital curricular topics and issues in a clear and direct manner. University Web sites were the primary source of information, with some e-mail verification of data, so information could be collected concerning all U.S. universities in the St. Louis University *List of Colleges with Majors in Entrepreneurship or Small Business*, the Princeton Review’s *Top 25 Undergraduate Colleges (in Entrepreneurship) for 2010* and College Board search results. The precise classification of data was complicated by the lack of uniformity in nomenclature and the challenges posed by especially diverse Web site structures and content. Data was entered in fields of a database, detailing university and course information. Due to the purposive data selection and resource constraints, only U.S. undergraduate Entrepreneurial

Finance courses were examined. Data was collected related to each course: the instructor, the course description, its objectives, methodology, topics, texts, cases, and course evaluation means.

This comprehensive study of Entrepreneurial Finance courses fills an important void in entrepreneurship education research. The most significant outcome of this research is the conclusion that it provides a threefold benefit:

- Providing a basic rationale for creating entrepreneurial finance courses in additional entrepreneurship programs by documenting nationwide development
- Developing aggregate data and profiles that institutions can access to provide an excellent starting point for strategic decision-making regarding the type of Entrepreneurial Finance course(s) to offer and key topics to consider, and
- Creating a baseline for existing course revision through the survey of course structure.

The data adduced from this study confirms the triad of approaches, with some qualification. In other words, the approaches have had an important catalytic effect in stimulating topical coverage.

While it also appears that the research has empirical validity in delineating pedagogical methods, the frailties of the evaluation strongly suggest that it should not serve as the exclusive method for evaluation of pedagogical practice. Ideally,multiple indicators, such as a combination of faculty surveys, author interviews, should be employed in measuring intent.

The current research sets forth a typology of Entrepreneurial Finance courses and provides practical information regarding these courses. However, in addition to the value of the applied research as it currently exists, this research suggests opportunities for additional lines of inquiry. The robust data collected thus far lends itself to further analysis of value to entrepreneurship programs in undergraduate institutions, including those that teach Entrepreneurial Finance courses. While the number of syllabi collected to-date is substantial, the addition of syllabi from the remaining institutions would make the data more robust for future research. Particular lines of inquiry to be explored as logical successors to this include:

- A comparison of course content to the needed skills and knowledge as identified by entrepreneurs and their advisors.
- A comprehensive analysis of the intersection with and divergence from mainstream corporate/managerial finance courses reflected in Entrepreneurial Finance courses.
- The review of teaching materials used in Entrepreneurial Finance courses with particular emphasis on texts, articles and cases. Preliminary review shows considerable variation both in form and content.
- Expansion of the database to include Entrepreneurial Finance courses globally. Such data could permit a multitude of pertinent analyses in today's global economy.
- Inclusion of additional research methodologies, such as interviews with faculty, administrators, and students regarding the courses employed (or absence of courses), pedagogies, and outcomes.
- Study of the educational benefits of existing and proposed Entrepreneurial Finance pedagogies.

This research on undergraduate Entrepreneurial Finance courses provides information about U.S. colleges and universities offering such courses, introduces a typology of courses, and

summarizes topics included in the courses by cluster. The information presented provides a baseline for revision of existing courses, strategic options for institutions exploring the inclusion of an Entrepreneurship Finance course, and offers a comprehensive analysis and typology to the field. The opportunities for future research are abundant and the need for further pedagogical information is significant.

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HOW PERCEPTION, KNOWLEDGE, AND CULTURAL VALUES INFLUENCE ENTREPRENEURS' FEAR: A MULTI-LEVEL INVESTIGATION

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ABSTRACT

Fear is a typical negative emotion that plays an important role in entrepreneurship. This paper explored the predictors of entrepreneurs' fear of starting a venture.We examined two individual-level predictors (i.e., entrepreneurs' knowledge and perceptions toward environment) and two country-level predictors (i.e., national cultural dimensions: uncertainty avoidance and individualism-collectivism).The results of hierarchical linear models revealed that entrepreneurs would have less fear of starting a venture when they possess more knowledge. In addition, individualistic culture could mitigate entrepreneurs' fear of starting a venture.

Keywords: *fear,knowledge,perceptions,individualism-collectivism,uncertainty avoidance.*

INTRODUCTION

Entrepreneurship is becoming an important research field because it stimulates economic growth and technological change (Elfenbein, Hamilton, & Zenger, 2010). Many studies examine how individuals' characteristics, such as individuals' knowledge and economic motivation, predict entrepreneurial activities (Patzelt & Shepherd, 2011). Among these characteristics, entrepreneurial emotion receives substantial amount of attention (Cardon et al., 2012; Shepherd, 2015). In particular, fear, an avoidance-oriented emotion (Smith & Ellsworth, 1985), has a significant impact on entrepreneurs. Scholars identified that fear, as an element of emotion, hinders entrepreneurial tasks (Foo, 2011; Grichnik et al., 2010; Shepherd 2003; Shepherd et al., 2007, 2009, 2011; Welpe et al., 2012). In addition fear has a negative effect on individuals' entrepreneurial propensity (Koellinger, Minniti, & Schade, 2007). It decreases exploitation tendencies and reduces the impact of positive opportunity evaluations (Welpe et al., 2012). Fear is also known to be associated with higher risk perceptions, thus reducing one's founding tendencies (Foo, 2009; Lerner & Keltner, 2001).

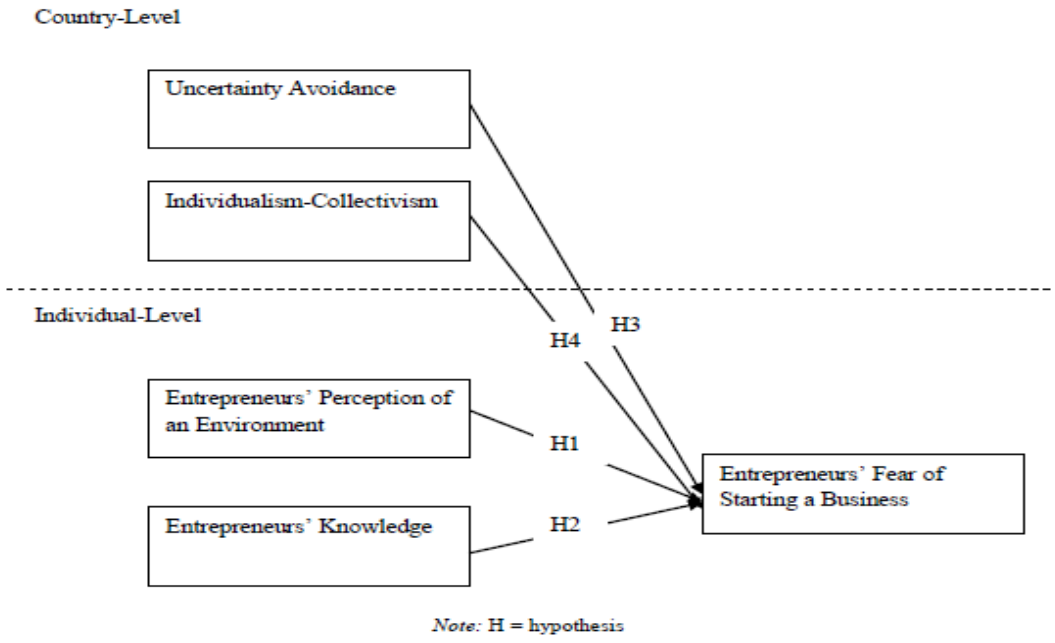
However, existing research has largely focused on the consequences of fear (e.g., Klepper & Thompson, 2007; Klepper, 2009). The predictors of fear still remain largely unknown. Thus, at micro-level, the first purpose of the present study is to examine how individual-level characteristics affect fear. There is also a lack of studies that integrate both macro and micro perspectives and study cross-level effect. Arenius and Clercq (2005) called for future research to examine whether cultural factors affect the extent to which a country's citizens recognize opportunities and start new businesses. Accordingly, the second purpose of the current study is to investigate how countries' cultural factors influence entrepreneurs' fear.

We use hierarchical linear models to analyze how entrepreneurs' prior knowledge, perceptions of environment, and cultural values influence entrepreneurs' fear of starting a

business.We employ two dimensions of cultural values, uncertainty avoidance and individualism-collectivism, to study why some people having certain cultural backgrounds express less fear and are more likely to start a venture.

This paper proceeds in what follows. First, we discuss the theoretical background of fear. Then we derive hypotheses regarding how entrepreneurs' knowledge and perceptions are related to fear. We also examine how cultural values influence fear. Third, we describe methods and interpret results. Finally, we conclude by discussing implications and limitations. The conceptual model tested in the present study is shown in Figure 1.

Figure 1
A CONCEPTUAL MODEL OF ENTREPRENEURS' FEAR



Note: H = hypothesis

THEORETICAL BACKGROUND AND HYPOTHESES

Perceptions

Scholars argue that fear of failure is a context-specific phenomenon so that it can be temporary or can be stable like a trait (Cacciotti & Hayton, 2015). We take perception into consideration in the present study because perceptions are viewed as an important determinant of entrepreneurial behavior, such as starting a new business (Koellinger et al., 2007). Casson (1982) argued that different perceptions about the environment are essential to entrepreneurship. This means whether entrepreneurs would like to take a risk to start a business, to some extent, depends on how entrepreneurs perceive the environment where they are. In general, an environment refers to a natural environment that consists of resources and services for the utilitarian life support of a human being (Daily, 1997). Another narrow definition of environment

is communal environment, defined as a complex web of relationships among individuals who share values, norms, meanings, history, and identity (Etzioni, 1996; Patzelt & Shepherd, 2011). The communal environment is distinguished by its culture, groups, and places (Redclift, 1992).

In the present study, we choose to use entrepreneurs' perceptions toward communal environment where entrepreneurs live. When one holds positive perceptions toward communal environment, one should be more likely to believe that entrepreneurial opportunities should exist and to recognize that they can pursue the opportunity if they want (McMullen & Shepherd, 2006). Hence, we argue that perceptions of an environment where individuals reside can foster individuals' willingness to start a business and thus decrease their fear.

H1 *Entrepreneurs' positive perceptions of an environment are negatively related to entrepreneurs' fear of starting a business.*

Knowledge

Knowledge is information that can be stored and recalled (Dreyfus & Dreyfus, 1986; Palich & Bagby, 1995). Since individuals possess different levels and amounts of knowledge, they may discover and exploit different types of opportunities (Shane & Eckhardt, 2003). However, we argue that one reason why knowledge can encourage individuals to pursue venture ideas is that knowledge can lower the chance of failure. When entrepreneurs acquire knowledge, they become more knowledgeable about how to gain profit from discoveries (Fiet & Patel, 2008). In addition, knowledge can decrease information uncertainty (Fiet & Patel, 2008). For example, on the one hand, knowledge can help entrepreneurs reflect what they know about a potential discovery. On the other hand, knowledge can make entrepreneurs be aware that new information is needed. More importantly, as entrepreneurs gain knowledge, their absorptive capacity will grow, thus helping entrepreneurs better understand new knowledge and recognize values (Qian & Acs, 2013). This continuous process will help entrepreneurs overcome fearful emotions. Thus, we hypothesize that when entrepreneurs have a certain degree of knowledge, they are less likely to perceive fear.

H2 *Entrepreneurs' knowledge is negatively related to their fear of starting a business.*

Cultural value

National culture is defined as "the values, beliefs and assumptions learned in early childhood that distinguish one group of people from another" (Newman & Nollen, 1996, p. 754). Individuals are embedded in countries and influenced by cultural values. Thus, we focus on how cultural values at country level motivate or discourage entrepreneurs to start ventures. Hofstede's cultural dimensions (1980) are one of the most widely studied and accepted cultural framework that is useful for explaining differences among nations (Triandis, 1982). Among the cultural dimensions proposed by Hofstede, we mainly focus on uncertainty avoidance and individualism-collectivism to address whether national culture has an impact on entrepreneurs' fear of starting a business.

Uncertainty avoidance

Uncertainty avoidance is defined as "the extent to which people feel threatened by ambiguous situations, and have created beliefs and institutions that try to avoid these" (Hofstede & Bond, 1984, p.419). It has to do with the way that a society deals with the fact that the future can never be known: should we try to control the future or just let it happen? The extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created beliefs and institutions that try to avoid these is reflected in the uncertainty avoidance score. Further, it affects the willingness of people to accept uncertainty (Keil et al., 2000; Shinnar, Giacomin, & Janssen, 2012). As individuals are willing to accept uncertainty, they are more likely to pursue entrepreneurial activities because entrepreneurship involves uncertainty (Autio, Pathak, & Wennberg, 2013). Thus, people who live in a nation embraces uncertainty acceptance will be more likely to start a business. On the opposite, people living in uncertainty avoidance oriented countries are less likely to start a business. Due to these reasons, we offer the following hypothesis.

H3 *Uncertainty avoidance culture at country level influences individuals' fear of starting a business. Individuals who live in uncertainty avoidance countries have more fear of starting a business than those who live in uncertainty acceptance countries.*

Individualism-Collectivism

Individualism is defined as "a situation in which people are supposed to look after themselves and their immediate family only," whereas collectivism is defined as "a situation in which people belong to in-groups or collectivities which are supposed to look after them in exchange for loyalty" (Hofstede & Bond, 1984, p.419). Under individualistic culture, people tend to act as individuals and pursue their own career goals. In addition, people like to pursue freedom (Donthu & Yoo, 1998), meaning that people desire to obtain autonomy. Under this culture, people are more likely to start their own ventures. For example, Dubina and Ramos (2016) demonstrated that in individualistic cultures, entrepreneurs are encouraged and entrepreneurship is valued by the society. On the contrary, people will pursue security and behave in a group when national culture is collectivistic. Accordingly, they experience fear of starting a venture because they are more likely to behave in a group. In addition, the collectivistic society does not encourage entrepreneurship, which worsens the fearful emotions of entrepreneurs.

H4 *Individualism-Collectivism culture at country level influences individuals' fear of starting a business. Individuals who live in individualistic countries have less fear of starting a business than those who live in collectivistic countries.*

METHODS

Data

We use data from The Global Entrepreneurship Monitor (GEM) project, which consists of 1,003,910 individuals. It is an annual assessment of entrepreneurial activities, aspirations, and attitudes of individuals across a wide range of countries. GEM was initiated in 1999 as a partnership between London Business School and Babson College. It explores the role of

entrepreneurship in national economic growth, thereby unveiling detailed national features and characteristics associated with entrepreneurial activities. Specifically, GEM defined individuals as entrepreneurs if they start a new business. In addition, the data includes entrepreneurs' motivation, knowledge, and value creation. At the national level, more than 85 nations report financial environment, government policies, market situations and so forth.

GEM determines whether someone is an entrepreneur by asking these questions: involved in independent start-up; involved in start-up, as part of job assignment; owner-manager of a running business. Those who indicate that any of these three items applies to them are considered as the candidates for nascent entrepreneurs or owner-managers of existing firms. Our study only focuses on nascent entrepreneurs because we argue that they are new to entrepreneurship and they would possess some degree of fear, and thus we used the first two questions to sort the sample. In addition, to meet the requirements of active nascent entrepreneurs in the start-up phase, we used the question "Has the new business paid any salaries, wages, or payment in kind, including your own, for more than three months?" If respondents answered no, they are considered as nascent entrepreneurs who are involved in setting up a business. After cleaning the data based on these criteria and deleting missing data, we received 19,718 individuals from 2001 to 2008 across 55 nations, among which 12,077 of them were males.

Measurements

The dependent variable is fear which is measured by asking entrepreneurs' fear of failure that would prevent them from starting a business. It is dummy coded as '0' no fear and '1' fear. The independent variables at level 1 are knowledge and perceptions toward environments. We used question "You have the knowledge, skill and experience required to start a new business" to address entrepreneurs' knowledge endowments. Entrepreneurs with knowledge, skill and experience are coded as '1' whereas those who do not are coded as '0'. GEM data is unique because it includes perceptions of individuals who were in the process of starting a new business at the time of the interview, thus linking individuals' perceptions with the actual activity of starting a business. Entrepreneurs' perceptions toward environment are measured by four questions, such as people's perceptions on living, career choice, respect related to starting a new business. We sum the scores ranged from 0 to 4, where '0' is lowest score on individuals' positive perceptions about environment, and '4' is the highest positive perceptions. Level 2 variables are uncertainty avoidance/acceptance and individualism-collectivism cultural values. According to Hofstede's study on cultural values at country level, we collected the uncertainty avoidance score for each country and then we split countries into two separate groups in accordance with Hofstede's rule. Uncertainty acceptance is coded as '0' and uncertainty avoidance is coded as '1'. We employed the same method and coded collectivistic countries as '0' and individualistic countries as'1'.

Analysis

We conducted hierarchical linear modeling version 6 (HLM6) (Raudenbush, Bryk, Cheong, & Congdon, 2005) to test hypotheses because individuals are nested in countries. Since dependent variable is categorical, we used Bernoulli in HLM6 and set Laplace iterations as 100 to run analyses. The data consists of two levels. The lower level (level 1) data contains individual

factors, such as entrepreneurs' perceptions and knowledge. The higher level (level 2) data is comprised of cultural values. As a result, level 1 data can address the difference between individuals, and level 2 data can capture variances between countries. To test hypothesis 1 and 2, we regressed dependent variable fear on predictors. Since independent variables are categorical, knowledge and perceptions toward environment are both un-centered. In addition, to test hypothesis 3 and hypothesis 4, we un-centered cultural values as level 2 predictors of the intercept and slope for each level 1 predictor.

Results

Table 1 presents means, standard deviations, and correlations of each variable. Before testing hypotheses, we ran null models in HLM6, which is a regression without level 1 or level 2 predictors. Null model shows that the mean of fear of starting a business was -1.19 and the difference between countries was .11, which was statistically significant (p<.001). We also ran all models with independent variables respectively. We first set knowledge as an independent variable and let its error random (see model A). It indicated that knowledge's effect on fear of starting a business was -.81 (p<.001) and the variance component of knowledge was statistically significant (p<.05). Next, we added perceptions as an independent variable to model A and let the error random as well. This was noted as model B1. However, the results demonstrated that the variance component of perception is .001 (p>.05). We therefore modified model B1 and let the error of perception fixed in model B2. Since no theoretical evidence lend support to letting error random, we let it fixed in accordance with empirical results. Model B2 shows that the model fit is improved. Finally, we tested level 2 variables' effect and Model C is the final model. Table 2 presents all model comparison, such as χ^2 difference, AIC, and BIC, all of which yield support to the final model we chose.

Hypothesis 1 predicates that entrepreneurs' positive perceptions of environment are negatively related to entrepreneurs' fear of starting a business. In Model C, γ_{20} shows that the effect of perception toward environment on fear of starting a business was .11 (p<.001). One unit increase in one's perception would result in an increase people's fear of starting a business by

Table 1
DESCRIPTIVE STATISTICS AND CORRELATIONS

Variable	Mean	S.D.	1	2	3	4	5
1.Fear	.23	.42	1.00				
2.knowledge	.88	.33	-.13**	1.00			
3.perceptions	2.69	1.11	.05**	.03**	1.00		
4.individualism-collectivism	.44	.50	-.07**	.01	-.11**	1.00	
5.uncertainty avoidance	.69	.46	.03**	.03**	.01	-.40**	1.00

** p<.01

Table 2
MODEL COMPARISON

	Null model	Model A	Model B1	Model B2	Model C
Deviance (# parameters estimated)	57238.75 (2)	56913.78 (5)	56866.00 (9)	56868.30 (6)	56857.57 (10)
Comparison model		Null model	Model A	Model B1	Model B2

χ^2 difference		324.97	47.77	2.30	10.73
Significance		p<.001	p<.001	p>.5	p=.03
AIC	57242.75	56923.78	56884.00	56880.30	56877.571
BIC (n)	57246.77	56933.81	56902.07	56892.35	56897.645
BIC (j)	57258.53	56963.22	56955.01	56927.64	56956.464
Favored model		Model A	Model B1	Model B2	Model C

Note: n = 19,718, j = 55; AIC = Akaile Information Criterion; BIC = Bayesian Information Criterion.

.11. Hypothesis 1 is not supported. Hypothesis 2 states that entrepreneurs' knowledge is negatively related to their fear of starting a business. γ_{10} shows that the effect of knowledge on fear of starting a business was -.76 when holding countries' cultural values constant. One unit increase in knowledge results in .76 unit (p<.001) decrease in people's fear of starting a business. Thus, hypothesis 2 is supported.

Hypothesis 3 predicts that uncertainty avoidance countries should positively influence people's fear of starting a business. According to γ_{02}, holding individualistic culture constant, as countries were uncertainty avoidance, people's fear of starting a business would increase .001. However, it is not statistically significant. Thus, hypothesis 3 is not supported. Hypothesis 4 proposes that countries having individualistic culture should negatively influence people's fear of starting a business. Based on γ_{01}, holding uncertainty avoidance/acceptance constant, when countries' culture was individualistic, people's fear of starting a business would decrease .27. Thus, hypothesis 4 is supported.

$$\eta_{ij} = \gamma_{00} + \gamma_{01}*\text{INDIVIDU}_j + \gamma_{02}*\text{UNCERTAI}_j + \gamma_{10}*\text{KNOWLEDG}_{ij} + \gamma_{11}*\text{INDIVIDU}_j*\text{KNOWLEDG}_{ij} + \gamma_{12}*\text{UNCERTAI}_j*\text{KNOWLEDG}_{ij} + \gamma_{20}*\text{PERCEPTI}_{ij} + u_{0j} + u_{1j}*\text{KNOWLEDG}_{ij}$$

Table 3
PARAMETER ESTIMATES AND VARIANCE COMPONENTS FOR ALL MODELS

Variable	null model	Model A	Model B1	Model B2	Model C
Fixed effects					
Intercept (γ_{00})	-1.19***	-.50***	-.80***	-.79***	-.68***
Individualism (γ_{01})					-.27*
Uncertainty Avoidance (γ_{02})					.01
knowledge slope					
Intercept (γ_{10})		-.81***	-.82***	-.82***	-.76***
Individualism (γ_{11})					-.05
Uncertainty avoidance (γ_{12})					-.05
Perception slope					
Intercept (γ_{20})			.11***	.11***	.11***
Random effects					
Intercept	.11***	.09**	.07*	.08**	.07**
Knowledge slope		.05*	.05*	.05*	.05*
Perception slope			.001		

$^{*}p<.05$; $^{**}p<.01$; $^{***}p<.001$

DISCUSSION AND CONCLUSION

This paper studies the influence of entrepreneurs' perception, knowledge, and national culture on entrepreneurs' fear emotion. Fear, as a negative emotion, is important in entrepreneurship research because it has a negative effect on individuals' entrepreneurial tendency, such as founding tendencies and exploitation tendencies. Previous studies have focused on the consequences of fear and demonstrated the impact of them. This paper explores the predictors of fear of starting a venture in entrepreneurship research. Based on this study, knowledge is found to negatively influence entrepreneurs' fear of starting a business. As entrepreneurs possess more knowledge, their fearful emotions will decrease. Our findings yield support to De Clercq and Arenius (2006) who argued that knowledge-based factors have a strong impact on the decisions to engage in business start-up activities. Their study was based on a large sample across 55 countries and confirmed that knowledge possession mitigated individuals' fearful emotion and encouraged individuals to start new ventures. In addition to individual-level factors, cultural values influence individuals' fear as well. Individualistic culture encourages individuals to start a new venture. Individuals in countries embrace individualistic culture are more likely to pursue autonomy and thus they are intrigued to start ventures. We found that individualistic countries that encourage entrepreneurship can mitigate entrepreneurs' fearful emotion.

However, we did not find significant findings regarding the influence of uncertainty avoidance on entrepreneurs' fear. We argue that it may be because when individuals perceive that the environment is sound, they also perceive that everyone can have the access to opportunity to start a venture. Perception of increased competition may lower the likelihood for one to start a venture. Thus, uncertainty avoidance alone does not affect entrepreneurs' fear.

This study has several limitations. We suggest two adjustments in the model. First, we mainly used dichotomous variables in the analysis, which may not capture the full scale. For example, knowledge is dummy coded as 0 and 1. We suggest using the seven-point Likert scale to better measure this variable and differentiate people who vary on the level of knowledge. Second, some control variables may influence one's fear of starting a venture. For instance, economic situation may have an impact on one's fear of starting a venture. When individuals have more wealth, they are more likely to start a venture as compared to those who lack wealth. In addition, whether entrepreneurs have family business background may explain some variance. If individuals are from family business, their intention to start ventures will be higher than those who are not from family business. Thus, future study may use HLM model and add these control variables that could potentially influence the dependent variable.

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DOES INDIVIDUAL RESILIENCE INFLUENCE ENTREPRENEURIAL SUCCESS?

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ABSTRACT

The purpose of this paper is to explore if a well-accepted conceptualization of individual level resilience can be used to predict entrepreneurial success, thus offering the field an operationalization of resilience in entrepreneurs. Whilst many accept the importance of entrepreneurial resilience, it remains largely a metaphor applied to any aspect of entrepreneurship, from individual level to business to system level resilience. We explore resilience in a sample of 215 founding entrepreneurs and use regression analysis to examine the relationship between resilience and entrepreneurial success as indicated by individual level variables, and between resilience and entrepreneurial success as indicated by business performance variables. We find resilience in entrepreneurs comprises hardiness and persistence; that entrepreneurs are more resilient than other populations; and that resilience does predict entrepreneurial success. The results offer a parsimonious scale for use in future research into the resilience of entrepreneurs, the indicators of which could provide useful guidance in the development of resilience education and training for entrepreneurs. This research responds to recognition that the term resilience has multiple meanings and is a metaphor needing additional conceptualisation for the context in which it is used. These findings suggest that individual level resilience in entrepreneurs can be conceptualised as hardiness and persistence, and operationalized by the items in the CD-RISC 10-item scale.

INTRODUCTION

Resilience is emerging as a critical phenomenon in entrepreneurship with entrepreneurs, academics, journalists and bloggers pointing to its importance to success (Suster, 2009, Featherstone, 2009, Hedner et al., 2011, Francis, 2014, Jozefak, 2011). However, resilience is a term with multiple definitions applicable to literatures as diverse such as mechanics, scientific methods, psychology, manufacturing, social research, climate change, and sustainability science causing some to question its status as a fashionable buzz-word (Alexander, 2013). Bergstrom and Dekker (2014) note that resilience is a fractal phenomenon whose recognisable and recurring features vary at the spatial scales of micro (human), meso (organisations), macro (societal) and cross-scale (social-ecological).

Within the domain of entrepreneurship, entrepreneurial resilience is variously conceptualised as a phenomenon associated with distinct aspects of entrepreneurship, most frequently the individual, the venture, and the team (Hayward et al., 2010, Hedner et al., 2011, Hmieleski and Carr, 2008). This multiplicity of conceptualisations mirrors that of other domains and presents a challenge to the field in measuring, understanding and therefore enhancing entrepreneurial resilience for the benefit of the community. In response to the evolution, and broad adoption/adaption, of resilience across many domains Masten (2014, p. 6) has recently re-defined resilience as "the capacity of a dynamic system to adapt successfully to disturbances that

threaten system function, viability, or development". Building on this definition, Bergstrom and Dekker (2014) open the path for entrepreneurship scholars to develop an agreed conceptualisation of resilience at each spatial scale of interest (for example: entrepreneur, venture, team, society or social-ecological) to facilitate its operationalization in research. Accordingly, the term entrepreneurial resilience could remain as Welsh (2014) suggests, a metaphor for any experience of recovery or "bouncing back" after adversity at any spatial or temporal scale whether that be the individual, the team, the venture, the society or business/ecological system/subsystem. Entrepreneurship scholars could hone the definition, measurement and research of resilience at each scale thereby building the body of unambiguous knowledge regarding the experience of resilience in the differing contexts of entrepreneurship, ultimately providing an agreed conceptualisation and operationalization for each spatial scale of interest.

In this paper, resilience is examined at Bergstrom and Dekker's micro level (2014) the entrepreneur. The search for the character, trait or situational premise that explains the capacity of a person to function effectively in the face of the adversity, stress, and uncertainty of entrepreneurship, and which differentiates them from non-entrepreneurs, has generated considerable discussion (Alvarez, 2005, Gartner, 1988, Sarasvathy, 2004, Miller, 2015). The lens of individual level resilience provides explanatory value as to "why some individuals, and not others, are able to develop successful new ventures" (Hmieleski and Carr, 2008, Baron, 2002) providing impetus to bring the teaching and development of resilience into the entrepreneurship curriculum (Awogbenle and Iwuamadi, 2010, Morris et al., 2013, Duening, 2010).

The objective of this research is to test if an operationalized, well accepted conceptualisation of individual level resilience can be used to predict entrepreneurial success and therefore offer the field a conceptualization for use in theory building and future research around resilience in entrepreneurs. To do so, differences between the level of resilience displayed in entrepreneur and other populations, and the the role of individual level resilience in entrepreneurial success, are investigated. Findings suggest that individual level resilience in entrepreneurs can be conceptualised as hardiness and persistence, does predict entrepreneurial success when indicated by individual level variables, and can be adequately captured by the Connor-Davidson Resilience Scale (10-item). This paper proceeds as follows. Firstly, the literature on resilience at the individual level, particularly in the context of research into the resilience of entrepreneurs, is briefly reviewed. The research is then presented, and finally results, conclusions and limitations are presented.

These findings are interesting for three reasons. Firstly, they add to the emerging body of knowledge that examines the nature of entrepreneurs' resilience (Bullough et al., 2014, Sun et al., 2011, Ayala Calvo and Manzano Garcia, 2010, Roche et al., 2014). Secondly, they contribute to the search for useful measure of psychological resilience in entrepreneurs across more than one culture (Manzano-Garcia and Ayala Calvo, 2013, Ayala and Manzano, 2014) and contribute understanding of the factors that comprise resilience in entrepreneurs and the items that best capture these factors. Finally, other fields recognise the importance of teaching and developing resilience for professional development and personal growth (Tempski et al., 2012, McAllister and McKinnon, 2009, Ahangar, 2010). The field of entrepreneurship calls for the education of future generations of entrepreneurs to be tackled by research that informs teaching (Winkel, 2013). Thus, this research offers some interesting findings about a well-accepted

measure of psychological resilience that can be used to inform the understanding and teaching of what it is that comprises individual level resilience in entrepreneurs.

LITERATURE REVIEW

Resilience is a phenomenon suggested to be important in the context of successful entrepreneurship, is linked to desirable characteristics of both entrepreneurs and their ventures, and offered as part of the explanation for success (Ahangar, 2010, Wee, 2008, DeAngelis, 2011, Kuemmerle, 2002). Research has been conducted examining resilience as a feature of the entrepreneurial venture or organisation (Powell and Baker, 2012, Branzei and Abdelnour, 2010, Gittell et al., 2005, Sutcliffe and Vogus, 2003, Steiner and Cleary, 2014, Yang and Danes, 2015, Farmer and Kilpatrick, 2009), the entrepreneurial team (Blatt, 2009), family (Chrisman et al., 2011, Jaskiewicz et al., 2015), community and state (Junaid et al., 2014, Gebhardt, 2012, Virapart, 2011), and the individual entrepreneur (Duening, 2010, Hayward et al., 2010, Dewald and Bowen, 2010, Hmieleski and Carr, 2008, Albornoz, 2008, Amanjee et al., 2006, Ayala and Manzano, 2014, Markman and Baron, 2003).

Resilience is important to understand because it can serve as a protective measure in the face of extreme stress, trauma and adversity (Green et al., 2014) and inform programs designed to prevent less or maladaptive outcomes of stress, trauma and adversity (Ballenger-Browning and Johnson, 2010). Entrepreneurship is a field of endeavour characterised by stress and adversity, if not also in some instances trauma. Thus, understanding resilience becomes a priority if scholars are to assist those who undertake entrepreneurship for the benefit of the wider community. In this research, resilience at the individual level is the phenomenon of interest.

Individual level resilience is a latent construct that came to prominence in the context of research into children and youth with good developmental outcomes despite their high risk status (Garmezy, 1996, Werner, 1995). Alexander (2013) traces the origins and application of resilience agreeing with Masten (2014) that its meaningfulness has evolved across a variety of disciplines and domains. For example resilience is studied, and policies to address it are developed with: at-risk children, teachers and students, employees and managers, health professionals, military personnel, disaster planning, communities, governments, health and social systems (Schinke et al., 2004, Seligman, 2011, McAllister and McKinnon, 2009, Tempski et al., 2012, Brown et al., 2001, Richardson, 2002, Welsh, 2014, Lew, 2014).

Despite the criticisms of complex non-linear causes and incomplete understanding of its components, resilience is widely accepted in the child development literature as a phenomenon that exists when functional outcomes are perceived in the context of risk and life stressors, or adaptation to a risk situation as a consequence of the interaction of a range of risk and protective factors (Olsson et al., 2003). For an overview of the development of the theory of resilience and notable theorists, see Masten (2014).

The existence of individual level resilience is not readily evident. The various definitions of individual level resilience are derived from differing sources of information about the presence of resilience. Accordingly, resilience is variously defined as the ability to adapt in the face of trauma, adversity, tragedy or even significant ongoing stressors (Masten, 2014), the embodiment of personal qualities that enable one to thrive in the face of adversity (Connor and Davidson, 2003), a personality characteristic that moderates the negative effects of stress and promotes adaptation (Ahern et al., 2006). Frequently the quality of resilience is attributed to individuals who in the face of overwhelming adversity are able to adapt and restore equilibrium to their lives and avoid the potentially deleterious effects of stress (Wagnild and Young, 1993).

Resilience may be viewed as a measure of successful stress coping (Connor and Davidson, 2003).

Kaplan (1999) offers a model to understand resilience that encapsulates key constructs inherent in the various definitions of resilience of outcomes, risk factors (and their complements) and protective factors (and their complements). The contribution of risk and protective factors to positive outcomes in adulthood has been well documented through empirical longitudinal studies (Fergusson and Lynskey 1996; Kadushin, 1975; Schoon, 2006; Werner and Smith, 2001). Other studies of children in particular risk situations such as family breakdown, chronic poverty, parental psychopathology and war (Werner, 1995) have also provided rich information on the concept of risk and adaptation. The risk and resilience framework resonates so well with practitioners and theoreticians that interventions are suggested as being applicable to enhance adult outcomes for children in other situations, such as children with disabilities (Murray, 2003), immigrant children (Yeh et al., 2008), and children who have or have had chronic physical illness (Pless and Stein, 1996).

Within the field of entrepreneurship, individual level resilience is considered to be of such importance that a lack of it, or not enough of it, is considered to be unhelpful at best, and detrimental at worst, to entrepreneurial endeavours. In other words, entrepreneurs are understood to be resilient, and this is proposed as part of the explanation of their success. Thus:

H1 Entrepreneurs display higher levels of resilience than other populations.

Capturing and measuring the individual's resilience has presented challenges for scale developers (Ahern et al., 2006). The Connor-Davidson Resilience Scale Resilience (CD-RISC) is one well accepted measure of resilience in which resilience is conceptualised as comprising five factors persistence, tenacity, self-efficacy; emotional and cognitive control under pressure; adaptability/ability to bounce back; control/meaning; and meaning (Connor and Davidson, 2003). These factors are consistent with the descriptions of resilience in entrepreneurship and entrepreneurs (Hedner et al., 2011, Hayward et al., 2010). The scale's reliability and construct validity has been confirmed in clinical and non-clinical populations, across cultures and professions, and in entrepreneurs (Connor and Davidson, 2003, Ayala and Manzano, 2014, Manzano-Garcia and Ayala Calvo, 2013) see http://www.connordavidson-resiliencescale.com/ for a list of research using this scale).

Nonetheless, the CD-RISC has also been found to have an unstable factor structure (Green et al., 2014). In a study of Spanish entrepreneurs using the 25-item CD-RISC, three factors emerged (hardiness, resourcefulness and optimism) predicting entrepreneurial success (Ayala and Manzano, 2014, Manzano-Garcia and Ayala Calvo, 2013). In response to the factor instability, Campbell-Sills and Stein (2007) refined the 25-item scale to a 10-item scale and found that individual level resilience comprises two factors: hardiness and persistence. Both of these emergent factors are consistent with descriptions of entrepreneurs particularly in the context of their resilience. At the time of writing other papers using the 10-item scale in the context of the resilience of entrepreneurs had not been identified.

Entrepreneurial success is an important, broadly conceived phenomenon often understood more by implication or context (Fisher et al., 2014). Nonetheless it been both subjectively and objectively defined (Alstete, 2008, Hiemstra et al., 2006). Entrepreneurial success is indicated objectively by sales and subjectively by interviewee estimation of comparative growth (Ayala and Manzano, 2014, Manzano-Garcia and Ayala Calvo, 2013). Objective business indicators are used as proxies for entrepreneurial success such as number of employees, average annual

turnover, and average rate of growth (Achtenhagen et al., 2010). Entrepreneurs subjectively perceive their success using their autonomy, satisfaction and goal achievement (Fisher et al., 2014). Therefore, for the purposes of this research subjective and objective indicators of entrepreneurial success are separated, and distinguished by the terms entrepreneurial success individual, and entrepreneurial success business. Furthermore, explaining entrepreneurial success by linking measures of firm performance to individual level variables has been questioned (Baron and Henry, 2011 p. 261), implying that a relationship between individual level variables and firm performance is not a reasonable assumption because of the array of other variables that may impact firm performance beyond the individual. Thus:

H2 *Individual level resilience predicts entrepreneurial success individual.*

H3 *Individual level resilience does not predict entrepreneurial success business.*

We present our methodology in the next section.

METHOD

To test the hypotheses, an online survey was distributed to 3,585 founding Australian entrepreneurs recruited through a mix of self-selection and convenience sampling. For the purposes of this research an entrepreneur is defined as a person who founded a for-profit business, in which he or she holds a majority shareholding, from an opportunity he or she identified, that generated sustainable income streams for more than five years, employed more than three full time employees in addition to the entrepreneur, and enabled the entrepreneur to be financially self-sufficient through the profits generated by the activities of that business.

The Connor-Davidson Resilience Scale (Revised) a 10-item scale, comprising two factors (hardiness and persistence), that determines the extent to which a person displays resilience, with higher scores reflecting greater resilience. Scale items are ranked on a five-point Likert type scale from not true at all (0) to true nearly all the time (4). Items include "I am able to adapt when changes occur", "I think of myself as a strong person when dealing with life's challenges and difficulties". Cronbach's $\alpha = .85$; items are summed to produce a scale score up to 40 (Campbell-Sills and Stein, 2007).

Entrepreneurial success individual - comprises 4 items on a 5-point Likert type scale. Items comprise - I am successful if I: am personally satisfied with my life and business; do only that which I want to do in life and business; continually grow my business; achieve the business goals I set out to achieve in founding at least one business. The statements are ranked on a five point Likert type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Cronbach's $\alpha = .72$ indicates satisfactory internal reliability, (M=16.00, SD=.2.85). The items are averaged to produce a scale score for entrepreneurial success individual (ESI).

Entrepreneurial Success business - a formative index was developed using six indicators of business activity: staff numbers and growth in staff numbers, turnover and growth in turnover, return on investment and growth in return on investment (Achtenhagen *et al.,* 2010, Baron *et al.,* 2010, Rauch *et al.,* 2000). Following Diamantopoulos and Winklhofer (2001) a global question was used to capture the essence of the factor, "This business has been operational for years". The six business indicators were correlated with this item, three were significant with this statement (p=.000), the remainder were dropped from the index which comprises for the purposes of this research: "In 2008, the approximate number of full time and part time staff

employed in the business "; "Approximate average annual turnover for the period 2006-2008 was "; "In the period 2006-2008, the average rate of growth per annum for this business was ___". The items were summed and their average used as the scale score (M=1.787, SD=.612) to indicate entrepreneurial success business (ESB).

The control variables were age, gender and level of education attainment. Gender was measured as a dichotomous variable (1 = female, 2 = male). Age and level of education attained were coded for each level, with age having 6 levels (1-6, M=3.00, SD=1.11), and education having 12 levels (1-12, M=8.79, SD=2.60).

RESULTS

Analysis was performed using SPSS Statistics and AMOS Versions 22. Data was screened to remove incomplete responses and those that did not meet the criteria for an entrepreneur. This reduced the 415 responses to a final sample size of 215 entrepreneurs, of whom 51 were women (23.7%). The majority were aged between 31-50 years (62%) and university educated (61%). The profile of the respondents is shown in Table 1.

Table 1
DEMOGRAPHICS OF PARTICIPANTS

Sex	N=215
Men	75%
Women	24%
Age Range	
18 to 30 years	7%
31 to 40 years	29%
41 to 50 years	33%
51 to 60 years	21%
61 to 70 years	9%
Over 70 years	1%
Education Level	
High School	15%
TAFE/Trade	25%
Bachelor's Degree	17%
Honours/Graduate Diploma	9%
Masters	24%
PhD	10%

A *t*-test was performed comparing the means reported for 5 other populations on the CD-RISC (10 items) against the mean derived for the sample of entrepreneurs in this research. The mean of this sample is higher and significantly different from the means in each of the other samples, suggesting the result is a significant difference and not due to chance (see Table 2). Previous research has supported a unidimensional model for the CD-RISC 10-item across different populations (Campbell-Sills and Stein, 2007, Gucciardi et al., 2011, L. et al., 2010, Coates et al., 2013), therefore confirmatory factor analysis (CFA) was used to assess the factor structure in this sample.

Table 2
COMPARISON OF POPULATION MEANS OTHER STUDIES AND THIS STUDY USING CD-RISC

CD-RISC 10 items				**Current Study, *n*=215**				
	Mean	Std	α	Mean	Std	t	Sig	α
USA undergraduate students n=1622 (Campbell-Sills and Stein, 2007)	27.21	5.84	.83	33.3	4.7	18.8	.000	.82
Spanish 1st year university students n=681(Notario-Pacheco *et al.,* 2001)	27.41	6.36	.85	33.3	4.7	18.3	.000	.82
Australian adult cricketers n=321 (Gucciardi *et al.,* 2011)	29.51	4.88	.83	33.3	4.7	11.8	.000	.82
Australian adolescent cricketers n=199 (Gucciardi *et al.,* 2011)	28.57	5.21	.82	33.3	4.7	14.7	.000	.82
Chinese earthquake victims n=341 teachers	24.83	7.42	.91	33.3	4.7	26.2	.000	.82

A one-factor congeneric model for the factor resilience was a satisfactory fit using Bollen-Stein p as Mardia's Coefficient suggested non-normal data: $\chi 2(35)=61.44$, Bollen-Stein p=.33, SRMR = .05, RMSEA = .06(.03, .08), TLI = .94, CFI = .95. Cronbach's α= .82 for 10 items suggested good reliability. Factor loadings were all significant at p=.000 and ranged between .35 and .73. Standardised residuals and modification indices did not suggest points of model misfit. A scale score for the factor resilience was derived by taking the sum of the items (see Table 3 for CFA results).

Table 3
CFA RESULTS CD-RISC STANDARDISED FACTOR LOADINGS (Λ) ERROR TERMS (Θ)

Item and description	λ	θ
1 - able to adapt when changes occur	.53	.29
4 - can deal with whatever comes my way	.62	.38
6 - try to see the humorous side of problems	.35	.12
7 - coping with stress can make me stronger	.57	.33
8 - tend to bounce back after illness, injury, or other hardships	.59	.35
11 - can achieve my goals, even if there are obstacles	.56	.32
14 – stay focussed under pressure	.54	.30
16 – not easily discouraged by failure	.71	.51
17 - think of self as a strong person	.73	.54
19 - able to handle unpleasant or painful feelings	.49	.24
Reliability	.82	
M	33.3	
SD	4.7	

The relationships between resilience as measured by the CDRISC-10 item and entrepreneurial success (individual and business) were explored using the enter method in SPSS to generate a hierarchical linear regression controlling for education, gender and age. Table 4 reports the correlations between the control, independent and dependent variables.

Table 4
CORRELATIONS BETWEEN VARIABLES

Variables	1.	2.	3.	4.	5.	6.
1. Education	1					
2. Gender	.071	1				
3. Age	.009	.138*	1			
4. Entrepreneurial success individual	-.086	-.189**	-.121	1		
5. Entrepreneurial success business	-.144*	-.015	-.066	.061	1	
6. Resilience	-.043	-.086	-.010	.199**	.127	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The validity of each model was evaluated using R^2, Adjusted R^2 and the F test of statistical significance. Benchmarks were met for beta coefficients and standard errors, Durbin-Watson statistic (acceptable between 1.5-2.5), Condition Index (acceptable at less than 30) and VIF values (acceptable at less than 5). Table 5 presents the results of regression analysis.

Table 5
HIERARCHICAL LINEAR REGRESSION MODELS ON THE RELATIONSHIP BETWEEN RESILIENCE AND ENTREPRENEURIAL SUCCESS INDIVIDUAL, AND RESILIENCE AND ENTREPRENEURIAL SUCCESS BUSINESS

	Entrepreneurial Success Individual		Entrepreneurial Success Business	
	β[a]	SE[aa]	β[a]	SE[aa]
Education	-.067	.075	-.140	.016
Gender	-.148*	.464	.014	.099
Age	-.098	.177	-.065	.038
Resilience	.183**	.041	.121	.009
R^2	.081**		.040	
Adjusted R^2	.064**		.021	
F value	4.63**		2.166	

[a] Standardised regression coefficients
[aa] Standard Error
** p <.01
* p <.05

DISCUSSION

The results of the hypothesis testing and their implications are discussed in the following section.

Levels of resilience

The one sample t-test result show that entrepreneurs have significantly (p=.000) higher mean scores (M=33.3, SD=4.76) for resilience than do five other populations on whom the CD-

RISC 10-item scale has been administered. These results give support to the findings of Manzano-Garcia and Ayala Calvo (2013) who used the full CD-RISC (25-items) to examine resilience in a sample of Spanish entrepreneurs and found above average levels of resilience.

The comparative studies investigated the resilience of samples that did not comprise entrepreneurs, and were both culturally similar and distinct to the sample in this research, specifically North American undergraduate students, Spanish undergraduate students, Chinese teachers who had been earthquake victims, and to two teams of Australian cricket players. Questions about the suitability of these mean scores for comparison on the grounds of both culture and group membership could be raised.

The CD-RISC (10 item) is a subset of all the items of the full CD-RISC (25 items), and both versions of the scale have been shown to capture resilience in different cultures including the Australian culture (Connor and Davidson 2003, Gillespie et al., 2009, Gucciardi et al., 2011, Liu et al., 2014). The full 25-item scale has been confirmed as capturing resilience in samples of entrepreneurs (Manzano-Garcia and Ayala Calvo, 2013, Ayala and Manzano, 2014). The results of this study indicate the 10-item scale is also confirmed as capturing resilience in entrepreneurs. The successful use of both versions of the CD-RISC to capture resilience in samples comprising both the same and different cultures and group memberships, suggest any concern about the use of the CD-RISC in different cultural or group settings can be overcome. That is, each scale appears to capture resilience across cultures and groups.

In general, these findings provide additional support for the suggestion that entrepreneurs are people who exhibit high levels of resilience, as compared to average or low levels of resilience, and this may contribute to their experience of success in entrepreneurship (Hmieleski and Carr, 2008). Thus, hypothesis 1 is supported, that is entrepreneurs do display higher levels of resilience than the general population.

Resilience factors

The full 25-item CD-RISC comprises five factors (persistence/tenacity and strong sense of self-efficacy; emotional and cognitive control under pressure; adaptability/ability to bounce back; control/meaning; and meaning (Davidson, 2009)). However, the factor structure has been found to vary with setting from 2 to 5 factors and the emergent factors comprise differing mixes of scale items (Liu et al., 2014, Campbell-Sills and Stein, 2007, Connor and Davidson, 2003). This is also evidenced in the sample of Spanish entrepreneurs where three factors emerged (hardiness, resourcefulness, optimism) from 23 of the 25 items of the full CD-RISC (Manzano-Garcia and Ayala Calvo, 2013). Accordingly, this variability in factors, and the descriptive items that comprise them, contributes somewhat but not conclusively to an understanding of what it is that comprises resilience in entrepreneurs. As the objective of this research is to contribute to the identification of individual level resilience so that educators, policy makers and practitioners can identify, target, research and manage resilience with a view to enhancing good entrepreneurial outcomes, it is desirable to clarify and agree what it is that comprises individual level resilience.

The CD-RISC-10 item scale was confirmed in this sample and comprises two underlying factors for resilience - hardiness and persistence (Campbell-Sills and Stein, 2007) and therefore this research suggests individual level resilience in Australian entrepreneurs is comprised of these two factors. Factor 1 is proposed to be hardiness, suggesting that entrepreneurs are able to adapt to changes, deal with whatever comes their way, believe coping with stress strengthens them, tend to bounce back after illness or hardship, can think clearly and focus under pressure, are not easily discouraged by failure, and believe they can handle unpleasant feelings. Factor 2

is persistence, that is: entrepreneurs try to see the humorous side of problems, believe they can achieve their goals, and think of themselves as strong people.

These factors are consistent with descriptions of resilience in the literature displayed by entrepreneurs (Hedner et al., 2011), reflect discussions in the literature about the capacity of entrepreneurs to bounce back (Envick, 2005), persist and function in adverse environments (Bullough et al., 2014, Branzei and Abdelnour, 2010), create new ventures after failure (Hayward et al., 2010), and reflect 1 out of 3 of the resilience factors found in Spanish entrepreneurs (Manzano-Garcia and Ayala Calvo, 2013). Inspecting the items of the CD-RISC 10-item scale broadens the understanding of what individual level resilience in entrepreneurs is, beyond the generic multidisciplinary explanation of having the capacity or ability to bounce back, rebound or successfully adapt to or after adversity, hardship or change (Li et al., 2015, Welsh, 2014).

The relationship between resilience and entrepreneurial success

Although low, the R2 results in the linear regression analysis are significant for the relationship between entrepreneurial success individual and resilience. Therefore it can be concluded that resilience does predict entrepreneurial success individual and hypothesis 2 is accepted.

The lack of significant relationship between resilience and entrepreneurial success business is consistent with the observation that expecting a relationship between individual level variables and business performance is optimistic (Baron and Henry, 2011). The CD-RISC is a measure comprising individual level variables comprising an affective-cognitive component (hardiness) and behavioural capacities (persistence) (Liu *et al.*, 2014). It is intuitively plausible to suggest that an individual's hardiness and persistence (the factors of resilience) would not predict business performance outcomes as these are ultimately the result of how revenues and costs perform in the environment in which the business operates. To suggest otherwise is to draw a long bow, particularly when one considers all the variables that can impact business performance outcomes irrespective of the hardiness and persistence of the entrepreneur. Thus, hypothesis 3 is supported in this research; that is, entrepreneurial success business is not predicted by individual level resilience.

On balance, it is suggested that individual level entrepreneurial resilience be defined as the combination of hardiness and persistence and be operationalized by the 10 items of the CD-RISC revised scale. The CD-RISC 10-item scale is preferred to the full 25 item scale which to date has been shown to vary with the setting. In the context of research into entrepreneurs, all items in the full scale have not been retained and load differently on factors that are suggestive of the original conceptualisation although different (see Manzano-Garcia & Ayala Calvo, 2013). By comparison, the 10-item scale has exhibited sound psychometric properties and a unidimensional single factor in other populations (Notario-Pacheco et al., 2001, Gucciardi et al., 2011). Given this scale is parsimonious, and that the 10 items can narrow the focus of researchers and educators to clear and unequivocal indicators of individual level resilience in entrepreneurs, it is suggested the revised 10-item scale could prove useful as a measure of the factors underlying individual level resilience in entrepreneurs, and the indicators that describe these factors. The 10-item scale provides entrepreneurship educators with markers around which they can build teaching and learning tasks and activities that will contribute to the development of resilience in students of entrepreneurship.

CONCLUSION

Overall, this research supports some of the findings of Manzano-Garcia and Ayala Calvo (2013, 2014) who found that resilience was comprised of hardiness, resourcefulness and optimism and predicts entrepreneurial success. Specifically, the results of this research suggest that the CD-RISC does capture aspects of individual level resilience in entrepreneurs and observes the relationship with entrepreneurial success depends on how it is operationalized. That is, when entrepreneurial success is operationalized by business performance measures there is no relationship with individual level resilience.

Following Bergstrom and Dekker (2014) these results suggest the venture or business is a different scale compared to the micro scale of the individual, and it is appropriate to conceptualise and operationalize venture or business resilience and its indicators differently to individual level resilience. It follows then, that the entrepreneurial resilience spoken of describing the business or venture is not the same entrepreneurial resilience when in the context of the entrepreneur. Therefore, the phrase "entrepreneurial resilience" should be understood as a metaphor that needs, in every instance of usage, to be further and clearly conceptualised and operationalized.

These modest findings contribute to the entrepreneurship literature by providing statistical support for the suggestion that entrepreneurs do need to be resilient (Duening, 2010; Hayward et al., 2010). Some argue resilience can be learned or the underlying traits enhanced through training (Albornoz, 2008; Jensen, Trollope-Kumar, Waters and Everson, 2008). Therefore, proactive steps can be defensibly taken to include the development of resilience in entrepreneurship education, and in the programs of government and other providers involved in the stimulation and encouragement of entrepreneurship. Knowing in particular what it is that comprises resilience, which itself is part of the explanation for entrepreneurial success, may benefit the entrepreneur and key stakeholders such as financiers, educators and policy makers.

Future opportunities arising from this research include use of the revised CD-RISC 10-item scale to determine if the structure of resilience found in this research remains stable in other cultures of entrepreneurs. If so, findings would provide additional support for a consistent set of resilience factors, and their indicators, for use with future resilience research particularly in entrepreneurs.

There are a number of limitations to this research including that the measures rely on self-report, the participants are drawn from one culture, and operationalization of the dependent variable used (entrepreneurial success) is open to contention and context. Thus the results may not be generalizable and the authors recognise this is an early stage effort to examine individual level resilience in the context of entrepreneurial success and can be improved upon by future researchers. Nonetheless, the results are offered as a contribution to the scholarly research and discussion into developing the understanding of the contribution of individual level resilience to entrepreneurship.

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EXPLORING COGNITIVE BIAS IN ENTREPRENEURIAL STARTUP FAILURE

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ABSTRACT

Exploratory experimental research here indicates that entrepreneurial candidates who have distorted views regarding entrepreneurial success are especially likely to fail at business startup. We first report on the results of in-depth interviews with expert counselors for Small Business Development Centers that emphasize the challenges of cognitive biases.We then present the results of a quasi-experimental intervention to give 69 candidates realistic information developed by the SBA to prepare potential entrepreneurs for business development and ownership. The intervention reduced attractiveness of symbolic, exaggerated claims found in less credible (considered 'predatory' claims by the SBA) business opportunities. The results of the study offer support for the use of educational interventions emphasizing realistic information about the entrepreneurial startup process and success.

INTRODUCTION

Due to its contributions to economic growth, scholars and policy makers have sought to stimulate entrepreneurial activity. In attempting to increase rates of startup and rates of startup success, they have adopted the assumption that as startup rates increase, startup success rates will remain the same or even increase. However, many of those with the best entrepreneurial abilities may have already undertaken the process, thus leaving a disproportionate number of lower potential entrepreneurs next in line.

We view this assumption as an empirical question rather than an article of faith. We ask: What if increasing rates of entrepreneurship beyond a certain point produces an inordinately high number of poorly qualified entrants? Are efforts to promote entrepreneurship giving many hopefuls unrealistic expectations, thus encouraging them to undertake financially risky and damaging startup behaviors? Is investing resources to improve startup chances of success always the best strategy? Is it possible instead that investing resources to discourage incipient entrepreneurs with poor prospects might be a more cost effective strategy?

A focus on increasing business startup rates may overlook the reality that not everyone who wants to be an entrepreneur should be. Despite a surfeit of desire, some people lack the competencies to succeed. The benefits to society of entrepreneurial development might be enhanced if those bound for failure were discouraged from making the plunge. Poorly prepared entrepreneurial candidates may well receive low returns and employ resources that could be used more productively elsewhere (Holtz-Eakin, 2000). If we can identify these people, we may be able to warn them of the perils that await. We believe that two related topics, how to recognize entrepreneurs with low probability of success and how to give them pause for thought before launching a business, deserve scholarly attention.

In this paper, we begin by asking what contributes to business startup failure rather than what contributes to its success. In attempting to answer it, we claim a major role for cognitive

biases, and identify multiple stages where the startup process can derail. Next, we present evidence from interviews with experts that support the role of cognitive biases. Finally, we present the results of a quasi-experimental field study with entrepreneurial hopefuls that tests a key link in the theory, that between cognitive bias and assessments of startup feasibility.

RELEVANT LITERATURE

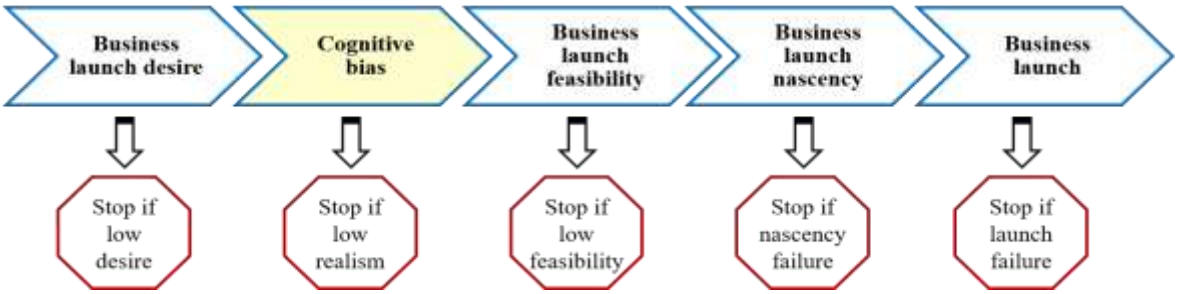
Most literature focuses on factors of entrepreneurial success rather than identifying entrepreneurial candidates with high likelihood of failure (e.g., Chaterjee & Das, 2015; Kumar & Sihag, 2012). However, several studies have examined contributors to smaller business failure after a business has started. These studies have investigated a host of factors believed to affect failure, including previous business experience, education, financial capital, and age (see Lussier & Pfeifer, 2001, for a summary of an extensive list). They have indicated that older, less educated owners with low managerial competence, little financial capital, and inadequate use of accounting expertise have shown higher failure rates (e.g., Hall, 1994; Gaskill, Van Auken, & Manning, 1993). Separate, largely independent streams have developed in the fields of entrepreneurship studies (Lussier & Pfeifer, 2001) and economics (e.g., Brüderl, Preisendörfer, & Ziegler, 1992; Holtz-Eakin, Joulfaian, & Rosen, 1994; see Bates, 1990, 1995, for an exception).

Researchers have started to identify other sources of entrepreneurial failure related to cognitive issues. For example, Von and Bressler (2011) acknowledge that entrepreneurial optimism is an important characteristic of successful entrepreneurs, but that excessive optimism can lead to business failure. Cognitive processes, including passion, was investigated by Envick (2014) concluding that honing and training passion, rather than emphasizing it, is an important component of entrepreneurial intelligence.

Business Startup Process

In recent years, scholars have developed theoretical explanations for elements of the business startup process. In the straight row of boxes in the middle of Figure 1, we present a model that amalgamates several strands in the business formation process literature (Carter, Gartner, & Reynolds, 1996). The process begins with a strong desire to start a business, which induces one to evaluate the feasibility of starting a business, with high feasibility encouraging efforts to organize for business startup (referred to as the nascency or incipient stage, e.g., Alsos & Kolvereid, 1999; Davidsson & Honig, 2003), followed by actual business launch. Borrowing from arguments that entrepreneurship is not the rational process traditionally described (Busenitz & Barney, 1997; Tarko, 2013; Simon, Houghton, & Aquino, 1999; Ucbasaran et al. 2010) we posit that cognitive biases mediate the relationship of desire with feasibility, as shown in Figure 1. The greater the desire to start a business, the more likely a person is to overestimate elements in the situation that support its viability. Thus, cognitive biases inflate estimates of feasibility.

Figure 1



Cognitive biases play a major role in the model. A segment of the emerging literature on nascent or incipient firms stresses the role cognitive factors play in decisions to start a business (e.g., Gatewood, Shaver, & Gartner, 1995). In particular, cognitive biases are held to distort individual perceptions of reality, especially in minimizing the perceived risk of entrepreneurial endeavors (Palich & Bagby, 1995; Simon et al., 1999; Simon & Houghton, 2002). Such biases, sometimes labeled cognitive heuristics, short-cut the search for thorough information, thereby reducing rational assessment in decision making (Cooper, Folta, & Woo, 1995). Evidence that entrepreneurs show greater biases than others (e.g., Busenitz & Barney, 1997), includes, but is not limited to optimism bias (Hmieleski & Baron, 2009; Ucbasaran, et al., 2010) and overconfidence effect (Forbes 2005; Salamouris, 2013). These signal that potential entrepreneurs may tend toward distortion. Many entrepreneurial candidates show little understanding of what they are getting into (e.g., Aimar, 2014; Simon, et al., 1999). Thus, cognitive biases become potentially critical factors in identifying those most likely to fail to complete the entrepreneurship process.

Met Expectations

A stream of work in the entrepreneurship literature treats the decision to start a business as a career-related move (e.g., Dyer, 1994). While this literature focuses on the decision to start a business, literature on other careers concentrates not only on the initial decision to start a job, but also subsequent job satisfaction levels (Wanous, Poland, Premack, & Davis, 1992). A prominent approach in this domain, the met expectations hypothesis, bridges the two by positing that new hires' expectations about their jobs affect later reactions to on-the-job experiences (Porter & Steers, 1973). As the discrepancy between higher initial expectations and later actual experiences increases, job satisfaction decreases. A meta-analysis (Wanous et al., 1992) found that unmet expectations reduced not only job satisfaction but also organizational commitment, intent to remain, and job survival. Moving beyond recruitment, studies have used the hypothesis to predict organizational socialization, expatriate adjustment, organizational politics, and reactions to compensation decisions (e.g., Begley & Lee, 2005; Caligiuri, Phillips, Lazarova, Tarique, & Bürgi, 2001; Vigoda & Cohen, 2002; Wanous et al., 1992).

Findings in support of this hypothesis led to the prescription that recruiters use realistic job previews to improve employee retention (Wanous et al., 1992). A realistic picture that includes less attractive features of a prospective job enables individuals to more accurately

appraise their fit. Knowledge of job drawbacks may make them more hesitant to enlist, but if they then accept the position, tempered expectations will inoculate them from upset when they encounter difficulties. The hypothesis appears to apply to entrepreneurial candidates. Because they cannot rely on members of a hiring organization to provide information on the nature of the job, they often must fill in the empty spaces themselves, which leaves much room for distortion. An intervention to provide information on the tasks involved in business startup should serve as a form of realistic job preview. If presented effectively, this intervention should bring greater realism to the thinking of prospective entrepreneurs, thus giving them pause for thought. It could have the twin benefits of preventing ill-prepared candidates from following through and of making those that continue more accepting of the conditions they encounter. Regarding the latter, recent literature has acknowledged that people may not end a business because they have failed but rather because they have better options (Gimeno et al., 1997). An alternative explanation is that entrepreneurs may leave the job simply because they dislike it or it did not live up to their (unrealistic) expectations.

In sum, met expectations predicts that a "realistic preview" will reduce the appeal of non-rational considerations. In the next section, we describe an experiment to test these notions.

PROPOSITION

Because our focus is on the likelihood of failure, in Figure 1, we have identified possible points in the business development process where individuals may halt their efforts toward startup. The first point is in having low desire to start a business, which discourages further effort. The second is in the cognitive biases stage where, in contrast to those who overestimate their capabilities, some people with substantial capital assets may underestimate the resources at their disposal, thereby stopping because they overestimate the difficulty. A third point is individuals' assessment at the feasibility stage that they do not have the means or capabilities to start a business. At the nascency stage, efforts to organize business prerequisites fall short. Finally, the last point is where a launch attempt fails to get the business off the ground. A final component of the figure is the dotted line that extends from feasibility, nascency, and launch back to cognitive biases. Consistent with the argument just presented, each of these stages may generate information and experiences that serve to correct inaccurate perceptions, thus reducing the effects of bias on the decision making process.

Based on the preceding discussion, the following proposition is offered:

P1: The business launch process begins with the desire to launch, which will positively influence cognitive biases.

P1a: Such biases will in turn distort assessments of feasibility.

P1b: Higher feasibility assessments lead to nascency activities aimed at preparing to initiate a business which, if successful, will positively influence actual business launch.

METHODOLOGY

Validating Cognitive Biases

We first tested the notion of cognitive biases through in-depth, semi-structured "active interviews" (Thomas, 1992) with twelve lead counselors in two separate Small Business

Development Center (SBDC) offices in a large city in the southwestern United States. A major section of the interview focused on reasons for failure in the startup process. Their many years of experience with the SBDC, preceded in most cases by entrepreneurial ventures, put these counselors in a unique position to observe potential entrepreneurs in the germination process. They had counseled failing entrepreneurs and potentials who would not normally show on the radar screen of business or government researchers, for example, those who had not reneged on a loan, opened and then closed an operating establishment, or hired and then laid off employees. Interviews averaged 60 minutes in length, with a range of 45 to 75 minutes. The 12 hours of recorded responses were then transcribed into 38 pages of single-spaced notes for later analysis.

Unprompted, the SBDC counselors supported the notion of cognitive biases and the role they play in business startup failure. Table 1 presents illustrative quotes from counselors that refer to cognitive biases, which represented a major stumbling block for would-be entrepreneurs. The counselors expressed a strong belief that substantial and increasing numbers of Americans with inadequate skills, education, experience, and financial capital a type they deemed "wannabes" or "dreamers" - were gravitating toward the lure of entrepreneurship, spurred on by their cognitive bias-induced inflated estimates of preparedness and ease of entry. As a result, SBDC offices nationwide had to focus increasing effort on dissuading poor entrepreneurial candidates, to the detriment of the SBDC's mission to help strong ones. The counselors believed that a very strong desire to start a business clouded the judgment of these dreamers, preventing them from realistically appraising the feasibility of such a venture.

Table 1
ILLUSTRATIVE QUOTES RELATED TO COGNITIVE BIASES

"They're the wannabes - they're the least likely to succeed, and they're the ones that… would love somebody to hold their hand and walk them right through it and tell them that they can do it and get it done - and do it for them - but I think in their experience… they've never had to commit to anything and they don't have a clue about what it is to run a business." (Kim)
"The American Dream has been for some time now to own your own business….the hype is that it is easy, you end up working less hours and making more money. What's hype and what's truth are two different things!" (Rick)
"The less successful 'wannabes' tend to have less formal and structured reasons for starting a business." (Loren)
"Usually they have a dream or a vision of what it is to be in business, or a desire to have the freedom that is talked about in being in business for yourself. Or 'dollar signs'- this is going to make me an instant millionaire - a lot of different, unfocused motivations." (Lou)
"There are a lot of people who are compulsive, gullible - where they believe all these testimonials that they see - maybe in an ad at the back of the Enquirer. You know, how to make a million dollars with you own business kind of thing…." (George)
"They didn't do their research - they did not do their homework, they do not have the discipline to do their homework - they just assume that because someone else had the capability to do this, they do too!" (Gordon)
"Lack of organizational skills kills more businesses than anything else- a lot of dreamers seem to have poor planning in life in general" (Tom)
"Little business experience, knowledge or education are a sure sign of ultimate failure" (Dan)
"Inability to see both the big picture, while simultaneously handling the little details" (Brian)
"Low self-esteem, that's a killer, someone who doesn't believe in themselves or is looking for others to blame for lack of success" (Lou)

A Quasi-Experimental Field Study of Realistic Information's Effects on Feasibility Assessment by Poorly Qualified Candidates for Entrepreneurship

The researchers were invited to study the effects of an SBDC seminar that was being designed to dissuade poor entrepreneurial candidates from attempting to start a business. We gladly accepted the invitation because it offered us a chance to more fully explore the part of our model that connected cognitive biases to inaccurate readings of feasibility. The following section describes a quasi-experiment that served the theoretical purpose of examining the cognitive biases feasibility relationship and the practical purpose of testing whether a rational intervention might reduce cognitive biases, thus having the potential to dissuade low-potential entrepreneurs from proceeding.

We posit that cognitive biases distort potential entrepreneurs' perceptions of the feasibility of business startup, leading to harmful effects. Although theoretically such effects could go in either direction, that is, toward under or over-estimating the difficulties involved, here we concentrate on under-estimation.The theory suggests that efforts to dissuade low potentials should aim to reduce the distorting influence of cognitive biases in decision making. Although rational consideration of information on the realities of entrepreneurial life would seem to serve that purpose, questions exist regarding its efficacy. Like other decision makers, entrepreneurial candidates may not revise initial estimates of success even after receiving additional information that questions or contradicts their assumptions (Tversky & Kahneman, 1974).

To test the efficacy of providing realistic information, we conducted a quasi-experimental field study that provided entrepreneurial candidates a realistic description of the challenges they could expect to face. The met expectations hypothesis (Porter & Steers, 1973) described above provided the rationale for predictions about the effects of such information.

Research conducted by the SBDC had concluded that its decreased job and revenue creation resulted from a high number of one-on-one counseling hours (at a cost of $75 an hour) spent on entrepreneurial aspirants with low skills and preparation. Counselors believed that an idealized conception of entrepreneurship prevented many aspirants from realistically appraising its difficulties. In response, the Center developed the "Minding Your Own Business" (MYOB) seminar to act as an intervention for those judged to have poor potential and invited us to formulate a plan to test its impact. After the interviews with Center staff previously noted, we organized a focus group of experienced counselors, who identified five activities that separated candidates with a realistic probability of success from those still at the "dreamer" stage. These activities paralleled ones identified in the literature to characterize nascent entrepreneurs (e.g., Carter et al., 1996).

Subsequently, each entrepreneurial candidate who requested counseling at this SBDC was pre-screened in a phone interview to ascertain whether he or she: (1) owned an ongoing concern with sales and/or employees, (2) had developed a business plan, (3) had successfully sought funding (bank loan, savings, relatives), (4) had developed a product prototype or secured a service location, or (5) had previously owned or started a small business. If responses indicated little concrete progress toward entrepreneurship, the center's director deemed the person "not yet ready for one-on-one counseling." As a prerequisite for SBDC counseling, "not ready" applicants were required to participate in the MYOB seminar. In a three-hour session designed to provide realistic information on the early stages of business formation, the seminar

addressed the workload and skills necessary to start and run a small business, the failure rate of startups, funding requirements, and the challenges of obtaining loans and other financial support.

The MYOB seminar provided a highly desirable "real world" field quasi-experiment to test the effects of cognitive biases. In addition, the results would have practical application. MYOB participants fit the requirements of the research design. First, they showed a strong desire to be entrepreneurs by seeking counseling for their business or business idea and paying to attend the seminar. Second, they fit the criteria set by the focus group as exhibiting poor readiness to start a business. Finally, as opposed to samples of students who might hope to engage in future entrepreneurial activity, most participants were well into their careers and had taken active, if preliminary, steps to pursue entrepreneurship.

Experiment Description

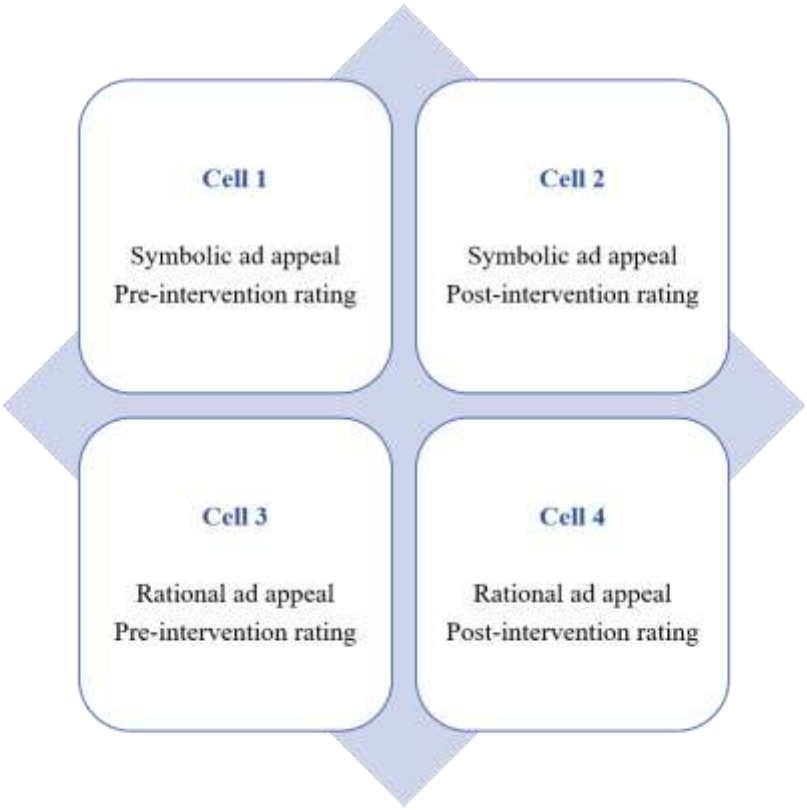
Counselors contrasted rational thinking with "dreamer" tendencies to respond to symbols of entrepreneurial success like independence, wealth, and leisure. Following this cue, advertisements were designed to exhibit either rational or symbolic appeals. Elements to incorporate in rational appeals were culled from franchise advertisements and critical reviews from franchise magazines geared toward prospective owners. Symbolic elements were derived from ads for multi-level marketing firms and incorporated elements of entrepreneurial mythology. Two panels, a group of three business Ph.D. students and a separate group of three SBDC counselors, helped identify rational and symbolic elements that relate best to entrepreneurial startup decisions. The panels also sifted through nearly a dozen current franchise and "hot" business opportunities in the press, judging four to hold broad appeal.

Next, rational and symbolic advertisements were created for each of the four business opportunities. Prototypes were then reviewed at a meeting attended by seven SBDC counselors, who suggested minor edits and verified the clarity of the rational and symbolic appeals presented in the ads. Finally, in a pre-test, 34 university entrepreneurship majors rated the attractiveness of each opportunity. Two ads showing similarity of ratings and variability of responses were chosen, one for a pizza franchise and the other for a children's gymnastic and activities facility. Rational and symbolic ads for both business opportunities (a total of four possible ads) were chosen for use in the experiment. This development process also helped to refine the dependent measures and experimental design.

For dependent measures, two questions asked respondents to rate their attraction to the ad they considered: "How attractive is this particular business option for you personally to own?" and "If you had investment funds and this business allowed you to invest and share in its success or failure how attractive would this be in terms of an investment option?" Response choices ranged from "very attractive" to "very unattractive" on a five-point scale. Because the two measures correlated .49, we analyzed them separately to see if they varied in results.

A manipulation check was included to determine whether the seminar affected participants' perceptions. A questionnaire item asked, "How prepared do you feel you are for starting your own business?" on a five-point scale. To serve the intended purpose as an intervention, ratings should be lower post-seminar than pre-seminar.

Figure 2



In total, 69 participants participated in six separate seminars, all presented by the same expert in entrepreneurship. Participants completed a questionnaire measuring variables such as education, small business experience, and family entrepreneurial experience. We used a 2 x 2 between-subjects experimental design with two levels of information related to entrepreneurship (higher or lower) and two appeals (symbolic or rational). Each participant rated two business opportunities, pizza and gymnastics. Subjects were randomly partitioned into those who rated ads before the seminar versus after and those who received ads with a symbolic or rational appeal.This partition created four cells: no treatment/symbolic, treatment/symbolic, no treatment/rational, and treatment/rational. A between-subjects design was chosen to prevent pre-seminar evaluations of business opportunities from sensitizing participants to seminar material in ways that might affect their post-seminar evaluations. The experimental design cells are shown in Figure 2, above.

ANALYSIS AND RESULTS

We analyzed data from the experiment using MANOVA, which allowed us to test (two-tailed) for treatment group effects on the dependent variables simultaneously.Within MANOVA, we conducted post-hoc multiple comparisons, using Bonferroni's formula for inequality to adjust for the number of statistical tests performed.The clearest indication of support for the hypothesized relationship would be the existence of a significant interaction in which the treatment had relatively little effect on those exposed to the rational ads but a significant dampening effect on those exposed to the symbolic ads.

Because pizza franchise and gym facility ads were used within each cell, we examined the within-cell scores for each to determine whether there was variation based on type of ad. T-tests indicated no significant differences between the means for the pizza and gym ads in any of the cells for either dependent variable, own or invest.

On the five-point scale of preparedness to start a business, pre-seminar participants averaged 3.28 as opposed to 2.38 for the post-seminar group ($t = 2.10$, $p<.05$). The seminar appears to have increased participants' doubts about their preparedness to start a business, which serves as the manipulation check.

Means and standard deviations for the four cells for each of the dependent variables, own and invest, are presented in Figure 3. The results of the MANOVA indicated significant differences within the overall two-dependent variable model (Wilks' Lambda, d.f.= 2, 112, $F= 6.31$, $p<.01$, for the treatment; $F= 0.77$, p= n.s., for symbolic versus rational; and $F= 3.31$, $p<.05$, for the interaction). Breaking down the between-subject effects, for the own option, neither the treatment nor symbolic-rational appeal achieved significance ($F=1.73$, p= n.s., and $F=1.19$, p= n.s., respectively), while the interaction was significant at the .08 level ($F= 3.19$, $p<.10$). For the invest option, tests showed a significant difference for the treatment ($F= 12.58$, $p<.001$), non-significance for symbolic-rational ($F= 0.00$, p= n.s.) and significance for the interaction ($F= 6.17$, $p=.01$). When the interaction effects are graphed (see Figure 4), the rational appeal's pre- to post-treatment attractiveness holds steady while the symbolic appeal's attractiveness decreases.

Post-hoc comparisons indicated that there were no statistically significant differences between any pair of cells for the own dependent variable, which points toward the importance of the overall interaction effect. For the invest dependent variable, there was a significant difference between the pre- and post-treatment cells for symbolic appeal and differences at the $p< .10$ between the pre-treatment symbolic cell and the post-treatment rational cell, as well as the post-treatment symbolic cell and the pre-treatment rational cell. Overall, the seminar seems to have made symbolic appeals less persuasive after exposure to the realistic presentation, in particular for the attractiveness of investment.

Figure 3

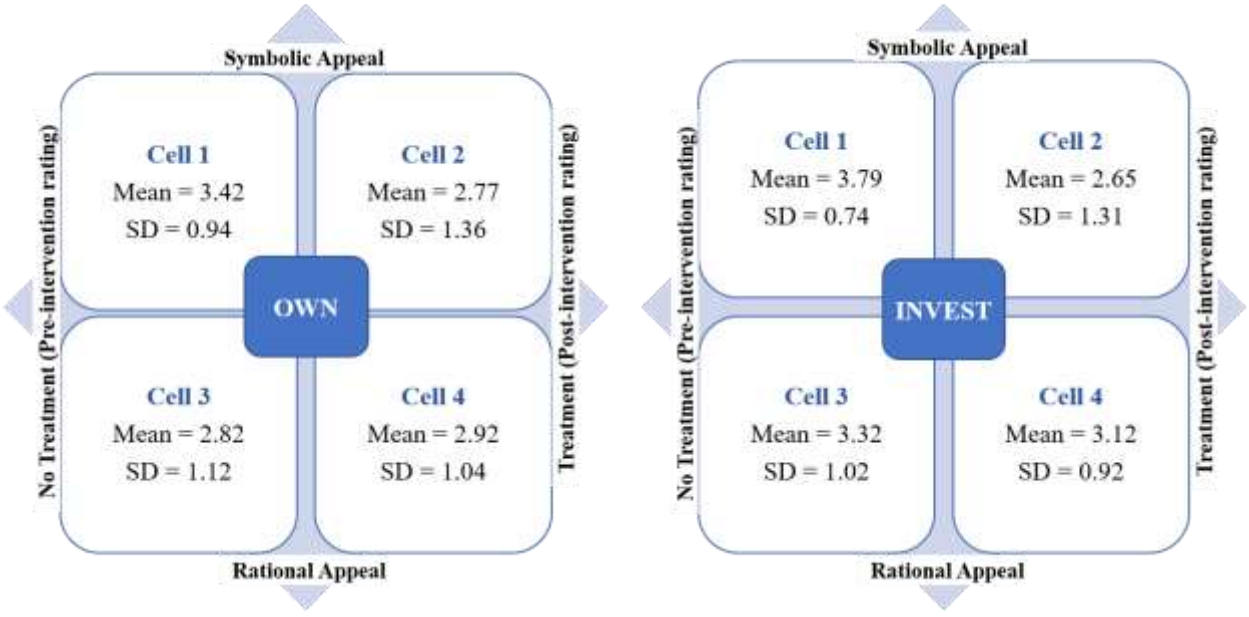
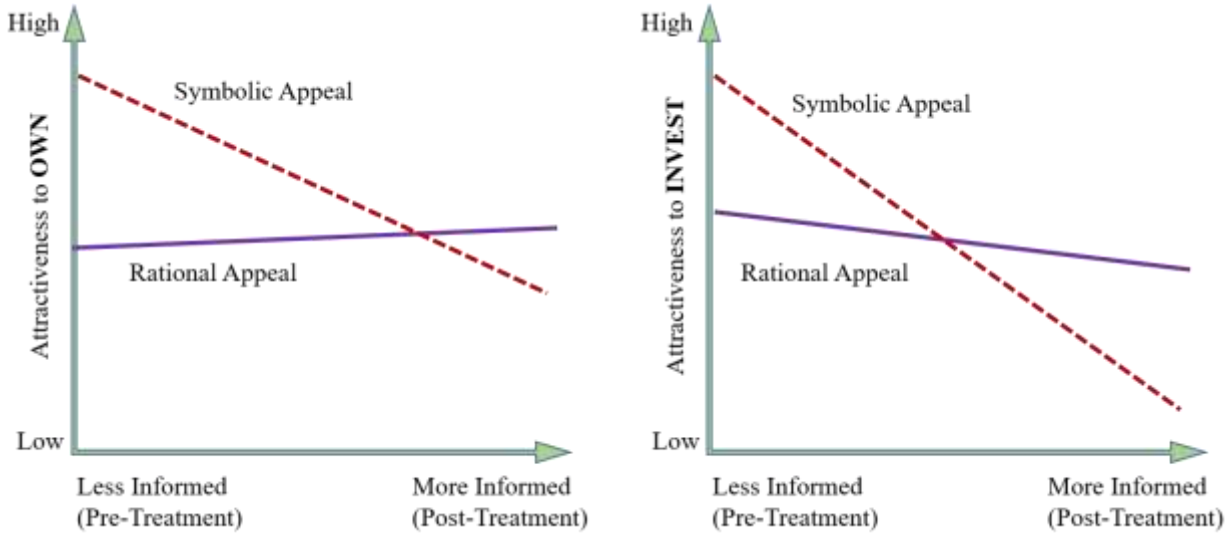


Figure 4



DISCUSSION

Quasi-Experiment Findings

This quasi-experimental study examined a group of entrepreneurial candidates seldom researched in the literature, those judged ill-prepared to start a business, using a sample of adults who had expressed serious interest in the vocation. It applied the met-expectations theory to the entrepreneurship domain. Finally, it tested a practical means to provide entrepreneurial "dreamers" a realistic sense of the challenges ahead.

In the results, we found an interactive effect for both dependent variables, which was stronger for the "invest" than "own" variable. The interaction was in the predicted direction, that is, post-seminar evaluations of the attractiveness of the rational ads did not vary substantially while post-seminar evaluations of the attractiveness of the symbolic ads decreased. Realistic information appeared to alter the expectations of entrepreneurial dreamers, giving them pause for thought. As predicted by the met-expectations literature, the seminar seemed to remove some of the glow from the symbolic appeal of entrepreneurship. This literature, which has focused primarily on jobs in larger companies, seems relevant to entrepreneurial careers as well.

From an applied perspective, the results offered support for the use of interventions emphasizing realistic information such as the MYOB seminar. Because MYOB participants were classified as low in preparedness for an entrepreneurial endeavor, we cannot say whether the same results would hold for highly prepared candidates. High preparation indicates that candidates are more informed and thus may be more realistic. On the other hand, high access to resources may provide a false sense of security that hampers realistic assessment. U.S. Small Business Development Centers receive government funding to help prospective or early-stage ventures succeed. More time advising people who are likely to fail means less time for high

potentials. In the present case, the seminar seems to have accomplished the SBDC's goal - it encouraged participants to look hard at their readiness to start a business.

Gravitation by poorly prepared entrepreneurial aspirants to symbolic appeals should also sound a note of concern to academics, advisors, and policy makers. Firms offering questionable entrepreneurial opportunities like some real estate and internet schemes, as well as numerous multilevel marketing organizations, leverage the mythology of the entrepreneur with highly symbolic appeals. SBDC counselors indicated that low-potential entrepreneurs are particularly lured by these appeals, often losing significant savings and retirement funds.

LIMITATIONS AND FUTURE RESEARCH

The study has some limitations. As a result of the between-cells design, we can say that key ratings differed after the workshop from before, but we do not know whether the workshop changed the perspective of individual participants. In addition, although we believe that the process of selecting seminar attendees was conducted by experts based on objective criteria, we cannot prove reliability and validity of the selection criteria.

A logical next step would be to investigate whether the short-term effects observed in this study were sustained over a longer period of time and whether they affected subsequent entrepreneurship-related plans and behavior. Another extension would seek to determine whether U.S. dynamics generalize to other countries. The centrality of entrepreneurship to U.S. business culture is not shared in all countries, especially those with an aversion to risk such as Germany and Japan (Reynolds, Bygrave, & Autio, 2001). Symbolic qualities of entrepreneurship in these countries might overemphasize the difficulties involved, in which case interventions may be needed to dispel myths that prevent talented people from taking the plunge.

CONCLUSIONS

The importance of entrepreneurship to economic growth understandably directs much effort toward encouraging people to start businesses. Research indicates that as many as 77% of students in the U.S. aspire to become entrepreneurs (Chun, 2011), and a recent worldwide student survey saw an amazing 96% of students believing it was important that their school foster an entrepreneurial atmosphere (Laureate International Universities, 2015). At the same time, entrepreneurship is not for everyone. Estimates of entrepreneurial success rates indicate that not all who aspire to this calling will achieve it. Clearly, people who lack the skills, resources, or motivation should be given an opportunity to question their preparedness. If we can identify and adequately caution those with a high likelihood of failure, we may be able to prevent the undesirable consequences to self-concept, family circumstances, and impact on society that misdirected effort can precipitate.

With that goal in mind, rather than ask what contributes to entrepreneurial success, we asked what makes entrepreneurial failure especially likely. Consistent with a prominent line of thinking (Carter et al. 1996; Krueger & Brazeal, 1994), we presented a process model of entrepreneurial startup that begins with the desire to start a business which, if high, may lead to cognitive biases. These biases cloud an entrepreneurial hopeful's judgment in assessing the feasibility of startup. Ultimately, this over-assessment can negatively impact initial efforts to organize and launch a business.

The results show a significant role for cognitive biases. Interviews with SBDC counselors reinforced the importance of this feature, especially as they documented the prominence of poorly prepared entrepreneurial hopefuls in their client base. Further, the growing literature on cognition as a prime contributor to entrepreneurial endeavor offers additional reinforcement (Baron, 2004; Mitchell et al., 2002; Ucbasaran, 2010). This focus has led an increasing number of scholars to question the extent to which entrepreneurs make rational decisions (e.g., Busenitz & Barney, 1997; Hmieleski & Baron, 2009; Simon et al., 1999.

This research helps explain entrepreneurial failure by calling attention to a large portion of the population, entrepreneurial "dreamers," who have the desire to start a business but not the wherewithal. For those seeking to increase rates of entrepreneurship, we ask whether a significant fraction of those involved at some stage of the process might be better off directing their energy and attention elsewhere with the encouragement of scholars, policymakers, and practitioners.

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