OPPORTUNITY CREATION: THE EFFECTS OF AFFECTIVE EVENTS AND INFORMATION PROCESSING (SYSTEMATIC, HEURISTIC) ON OPPORTUNITY CREATION IDEA QUANTITY AND QUALITY

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Abstract: Utilizing a sample of 206 entrepreneurs, this study examines opportunity creation idea quantity and quality for dispositionally positive or negative entrepreneurs following the experience of a positive or negative affective state event. Negative state affect induced by manipulation significantly reduced opportunity creation idea quantity and quality for dispositionally positive and negative entrepreneurs. Results suggest both dispositionally positive and negative entrepreneurs respond to experienced affective events quickly by generating numerous ideas, however the quality of those ideas was not particularly high. Results from this study can enhance our understanding of how entrepreneurs' can respond to uncertain, dynamic environmental factors and make quality decisions regarding potential opportunities.

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CHAPTER I

INTRODUCTION

Understanding how an entrepreneur thinks is the 'Holy Grail' for entrepreneurial cognition researchers, and as a result, considerable emphasis has focused on elucidating the cognitive mechanisms responsible for entrepreneurial activity (Baron, 2007; Dimov, 2007, 2011; Grégoire, Barr, & Shepherd, 2010; Kautonen, Gelderen, & Fink, 2015; McMullen & Shepherd, 2006). Increasingly, conceptualizations of entrepreneurship involve a process view that develops over a period of time (Baker & Shepherd, 2017; McMullen, 2015; McMullen & Dimov, 2013; Morris, Pryor, & Schindehutte, 2012a; Shim & Davidson, 2018; Zahra & Wright, 2011) making attempts to understand the entrepreneurial thought process exceedingly complex. Necessary for any adequate conception of the entrepreneurial process is the opportunity; without an opportunity, or at least the perception of an opportunity there is no entrepreneurial process (Short, Ketchen, Shook, & Ireland, 2010).

Opportunity research has been strongly influenced by the dichotomy between Schumpeter's (1934, 1942) discovery and Kirzner's (1997) recognition perspectives. For example, a number of studies present views closely aligned with Schumpeter (1934), (e.g. Hmieleski, Carr, & Baron, 2015; Shane, 2000) while Baron (2004, 2006) explicated a

depiction more similar to the opportunity recognition views of Kirzner (1997). Alvarez and Barney (2007) introduced opportunity creation into the opportunity discussion. While significant progress has occurred in opportunity research, still many questions remain, particularly for the opportunity creation construct. George, Parida, Lahti, and Wincent (2016) concluded that opportunity creation was 'largely unexplored in empirical studies', and was 'thus, a critical direction for future studies' in order to more fully articulate a unified theory of opportunities. Alvarez and Barney (2017) contend that creation "is a particularly attractive framework" for empirical study when the objective is to understand learning in ambiguous settings. The purpose of my Dissertation is to examine the largely unexplored opportunity creation construct and its antecedents.

Affect and Opportunity Creation

Cardon, Grégoire, Stevens, and Patel (2013) suggest that because the entrepreneur is personally attached to their venture and the entrepreneurial journey is filled with uncertainty, they often experience strong emotions- good or bad. Baron (1998, 2008) argued that affect may be especially influential for entrepreneurs because of the psychological link between affect and cognition when the task is novel or complex and requires effortful deliberation. Russell and Barrett (1999) described the effect of an emotional experience as one that results in 1) changes to core affect, 2) the need for appraisal, 3) action aimed at the object of the emotion, 4) the realization of a particular emotion, 5) neural and chemical physiological changes that prepare one for action. As such, affect influences the cognitive models that are consulted following the experience of a personally significant event (Forgas, 1979).

Affect research has delineated affect as dispositional, a relatively stable trait (e.g. Baron, 2008), and a state or event initiated (Baron, 2008; Foo, Uy, & Baron, 2009) effect. I follow a predominate body of previous research that uses the term affect for describing a wide range of feelings including emotions (short duration), and moods, which can last for extended time periods; either of which may be directed or focused on an object or event (Frijda, 1993). Previous research suggests the impact of affect on cognition (decision making) is related to activation (low-high activating) and valence (unpleasant-pleasant) (Feldman-Barret & Goss, 2001; Feldman-Barret & Russel, 1999). For example, positive affect is significantly related to creativity, but only if it includes high activation; whereas, positive affect with low activation (relaxed, calm, at rest) is not related to enhanced creativity, instead it invokes a preference to avoid or prevent loss. Entrepreneurship research has focused primarily on positive affect in relation to entrepreneurial opportunities so additional empirical work on negative affect would significantly advance knowledge (García, Puente, & Mazagatos, 2015). Hayton and Cholakova (2012) developed a conceptual framework that considers positive and negative affect, but no known studies empirically examine the impact positive and negative state inducing affective events have on entrepreneurs with positive and negative dispositional affect related to entrepreneurial outcomes. While most entrepreneurs are high in positive dispositional affect (e.g. de Meza & Southey, 1996; Hmieleski & Baron, 2009), my examination includes entrepreneurs with both positive and negative dispositional affect because of my suspicion that dispositional affect may fluctuate over a lifespan, and those, even subtle changes may greatly impact decision-making quality.

Entrepreneurial Judgment and Decision Making (EJDM)

Entrepreneurial intention is largely credited with being the antecedent of entrepreneurial action (Ajzen, 1991; Krueger, Reilly, Carsrud, 2000; Liñán & Chen, 2009) and intention is established or set by a new judgment (Brown, Packard, & Byland, 2018). McMullen (2015) conceptualized entrepreneurial judgment as a series of decisions made based on perceived truth and appropriateness, which are constantly updated and revised as progress is made toward entrepreneurial action. EJDM, as developed in this paper is influenced by affect and includes a slow, deliberate, carefully intentionally reasoned strategy, and a fast, pre-reasoned, intuitive response that is subconsciously intentional. In opportunity creation, fast or snap EJDM is utilized when action is perceived to be preferable to the alternative; a time consuming, effortful, conscious reasoning that considers multiple alternatives. Fast EJDM relies on pre-reasoned logic that is intentional, but only subconsciously, and has developed over time; it is utilized for the vast majority (up to 95%) of decisions made (Kahneman, 2011).

As decision making becomes more complex, deemed important, or if a previous decision produced undesirable results and action is perceived to still be necessary, decision making shifts to slow, deliberate EJDM. Slow EJDM incorporates conscious reasoning activities such as sensemaking (Weick, 1993; Weick, Sutcliffe, & Obstfeld, 2005) through appraisal (Epstein, Pacini, Denes-Raj, & Heier, 1996; Ortony, Norman, & Revelle, 2005), imagination (McMullen, 2010, 2015), and insight (Tang et al., 2012). While fast and slow EJDM may appear to be two distinct cognitive activities, but the depiction of EJDM developed here views both as two-sides of the same "judgement" coin.

The decision to pursue an opportunity involves a complex process of identifying and disseminating relevant signals emanating from a dynamic, ever-changing environment (Grégoire, Barr, & Shepherd, 2010a). Companys and McMullen (2007) posit that individuals seek to maximize utility within their current setting and are only motivated to consider alternatives (i.e. act differently) when they encounter an environmental or contextual change. Change is personally experienced as a single event, or series of events, and may be triggered by internal or external stimuli (Lerner, Hunt, & Dimov, 2018). Personal experiences result in a host of thoughts and emotions that are evaluated (judged) based on the perceived threat to or potential to enhance subjective well-being (Ellsworth & Sherer, 2003; Kahneman, 2003). Barrett (2006) proposed that emotions triggered from the experience of an event(s) contribute to the production of core affect, which strongly influences cognition and behavior (Baron, 2004, 2007). Affect and experiencing are inseparable as affect influences how events are experienced, subsequently judged, what response is appropriate (Morris et al., 2012a), in addition, the experience impacts the resultant affective state. Any attempt to understand entrepreneurial behaviors would be incomplete without consideration of both affect and cognition (e.g. Bower, 1981; García et al., 2015; Phelps, 2006).

Although not exclusive to entrepreneurship, judgment is considered foundational to entrepreneurship (Foss & Klein, 2012; McMullen, 2010, 2015; McMullen & Shephard, 2006; Mises, 1998) in that it determines intentional action (Kahneman, 2011) and is the controller of entrepreneurial decision making (Foss & Klein, 2012). However, entrepreneurship is heterogeneous among entrepreneurs because even when presented with the same data or stimuli, each entrepreneur will interpret meaning and form

intentions uniquely (Casson & Wadeson, 2007; Foss & Klein, 2012; Lachmann, 1976) based on subjective well-being preferences at any given point in time. While I agree that EJDM leads to entrepreneurial action, I contend the link is moderated by opportunity creation, because as McMullen (2010, 2015) suggests, prior to entrepreneurial action, the entrepreneur constructs mental models (imaginations) of their product or service and how those might be received by a potential customer or market. Where I differ with the McMullen conception of entrepreneurial judgement is I define opportunity creation as the construction of mental models where a product, service, or new venture is developed and received by potential customers and markets, as opposed to being a function of judgment. I also contend opportunity creation occurs to some degree in all opportunity contexts (i.e. recognition, discovery) in order to tailor the opportunity to the subjective well-being objectives of the entrepreneur. The debate surrounding the opportunity construct has been hotly contested in the research community for more than ten years, particularly related to delineating the boundaries between opportunity recognition, discovery, and creation; with some now insisting the construct should be abandoned (Davidsson, Recker, & von Briel, 2018; Foss & Klein, 2018). Davidsson et al. (2018) developed a framework where external enablers are, in effect, replacing recognition and discovery but is compatible with an agentic perspective of opportunity creation that appears to be consistent with my view, where any entrepreneurial action is tailored to the subjective well-being objectives of the entrepreneur. Without entrepreneurial action there is no entrepreneurship (Foss & Klein, 2012; McMullen & Shepherd, 2006), however, a number of questions remain regarding how and why such actions occurs, including exactly what role does opportunity creation play in the entrepreneurial process.

Contributions

The current study is focused on cognitive and emotional factors that influence opportunity creation, and as a result, is important for a number of reasons. Given the link between opportunity creation and little or no previous information to use in decision making, I explore opportunity creation with an experimental vignette methodology (EVM) (Aguinis & Bradley, 2014). Whether an entrepreneur is experienced or nascent, each creation must be uniquely tailored to their particular situation and subjective well-being objectives, so every attempt at opportunity creation embodies uncertainty where risk is largely unquantifiable ex-ante. While much of humanity is simply trudging through life head down with little or no conscious thought of optimal well-being, I suspect the entrepreneur may be the outlier; not necessarily because of conscious intent, but because by economic definition, they often appear to be on a quest for enhanced individual well-being (Mises, 1998, p. 19), that may or may not include the intention to market.

This dissertation is the first known study to empirically examine affective state and dispositional affect effects concurrently on opportunity creation. Drawing on affective events theory, this study examines the quantity and quality creative ideas following an experienced affective event and whether the quantity and quality of ideas is enhanced by the use of fast or slow EJDM (Brown et al., 2018; Kahneman, 2003) for entrepreneurs with positive or negative dispositional affect. This will help answer questions regarding entrepreneurial decision making following positive and negative affective experiences and could also contribute to knowledge related to decision making quality for entrepreneurs who experience even slight changes in dispositional affect over

a life course. The study also makes methodological contributions by developing and validating an opportunity creation quality scale and examining both explicit outcomes and the implicit processes utilized. The current study is important because will elucidates opportunity creation in real world problem solving through the use of imagination and insight within EJDM. As to practical implications, the study contributes to knowledge related to decision making quality of the entrepreneur, who over time experience changes in their dispositional affect. The current research also has quality of life implications pertaining to the psychological well-being of people following the experience of emotionally charged triggering event(s) by differentiating when certain responses are more likely to lead to entrepreneurial success. In addition, the findings of the study may benefit the larger population of individuals who experience the need to solve real world problems.

Research Questions

An overarching research question of the study is how does opportunity creation occur, and what processes underlie it? Additionally, where does opportunity creation come from, and how is affect related to the process? More specifically, I ask how does the experience of state inducing positive and negative affective events influence the quality and quantity of opportunity creation ideas for entrepreneurs with positive or negative dispositional affect? Is this effect different for entrepreneurs with positive or negative dispositional affect? Also, does the quality and quantity of opportunity creation ideas change with the use of fast or slow EJDM, and is this different for entrepreneurs with positive or negative state affect?

Overview

In the first chapter I outline the importance and purpose of the current study. I briefly describe extant research and knowledge of the core constructs and their theorized relationships. I then introduce the theoretical rationale for the study and point out numerous calls for further study involving opportunity creation. I then detail the contributions of the study and the research questions examined. Finally, I present a short overview of chapter one and the following four chapters.

I proceed as follows: In chapter two I provide a comprehensive overview of the literature on opportunity creation, state and dispositional affect, as well as entrepreneurial judgment, imagination and insight. I detail the theoretical underpinnings of the Affect Events Theory (AET) and elaborate on how it relates to opportunity creation in the development of the study hypotheses. In chapter three I describe the methodology used in the study as well as the sample and measures. The fourth chapter presents the statistical analyses and the findings of the study. Finally, the fifth chapter discusses the implications of the findings as well as the study's limitation and practical contributions.

CHAPTER II

THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

Affective Events Theory (AET)

The theoretical framework from which this dissertation draws is Affective Events Theory (AET) (Weiss & Beal, 2005; Weiss & Cropanzo, 1996). AET elucidates how experienced events produce affective states that influence or shape??? behavior (Weiss & Beal, 2005; Weiss & Cropanzo, 1996). Originally conceptualized within a workplace environment, the central tenant of AET is that an individual's response to experienced events is based on their emotional and cognitive judgments, attitudes, and mood. Life is replete with events; some expected and planned for, while others are the result of exogenous factors completely outside a person's control. Desjarlais (1997) suggests significant events can occur independently or as part of an ongoing series of events. Understanding the affect events elicits is a complex process that depends on a number of individual factors (Csikszentmihalyi, 1990). Implicit meaning is derived as the individual makes sense (Weick, 1993; Weick, Sutcliffe, & Obstfeld, 2005). and encodes perceptual, sensory, and affective information, and is ultimately determined by the personal significance or meaning attributed to the event. How an individual experiences an event,

and the lasting effects the event has is determined by the affective state that emerges from the event (e.g. thoughts, feelings, and emotions) (Throop, 2003).

Events are experienced as temporal in that they are quickly assessed to determine significance and meaning. Significance and meaning are determined by the dissimilarity of the new information or event with previous experience and knowledge, and more importantly by the surprise or shock value they evoke (Morris et al., 2012a; Vachon, Hughes, & Jones, 2012). As new information is introduced or an event is experienced attention is allocated, either through subconscious automatic (Posner & Snyder, 1975; Shiffrin & Schneider, 1977) or conscious, purposive (Cowen, 1995) processing. At its most basic sense, attention is the ability to respond to, or interact with the environment by focusing effort on an internal or external stimulus, whether consciously or subconsciously (Ashcraft & Radvansky, 2013). Johnston, McCann, and Remington (1995) referred to fast, automatic attention as input attention, while slow deliberate attention as controlled attention. Attention initiates cognition (Ashcraft & Radvansky, 2013) as information enters awareness and processing begins in order to make sense of the stimuli (Epstein, Pacini, Denes-Raj, & Heier, 1996). When an event is perceived to be disruptive to the norm and impactful to well-being, it is judged to be meaningful or significant and worthy of additional processing, or benign and discarded (Bruner, 1986).

In the entrepreneurial experiencing model, as entrepreneurs construct their subjective realities, they experience numerous interacting events that vary in magnitude, duration, and volatility (Morris, Kuratko, Schindehutte, & Spivack, 2012b). The entrepreneur's feelings and emotions or core affect is a central component of the human experience (Throop, 2003). Morris et al. (2012b) emphasized "the critical role played by

idiosyncratic events that are frequently uncontrollable and unpredictable" (16) as they shape the formation of the entrepreneur while the entrepreneur is constructing their unique reality. In this study a significant affective event(s) is conceptualized as any experienced event that produces a change in core affect; so much so that the entrepreneur experiences, at least momentarily an impasse, because they do not immediately know how to respond. The event can be experienced as positive or negative but would result in a decided change from what has been previously deemed significant by the appraiser. Personal significance is attached because of the entrepreneurs' perceptions related to the subjective well-being of the individual, or the people and causes important to her/him. The affective event could be prompted by internal or external stimuli that elicit some type of response. The current study only considers what happens during opportunity creation and therefore does not include those instances where one pulls back in response to an affective event(s) and chooses not to pursue opportunity creation.

Opportunity Creation

Amabile (1996) defined creativity as the generation of novel and useful ideas. In contrast, innovation involves the conversion of ideas into tangible new systems, processes of production, products, or ventures (Sarooghi, Libaers, & Burkemper, 2015). The transformation from idea to concrete offering is a complex non-linear journey complicated by the fact that each activity requires navigating uncertainty (Whitson & Galinsky, 2008), withstanding tensions (Lewis, Welsh, Dehler, & Green, 2002), dilemmas (Benner & Tushman, 2003), and reconciling paradoxes (Miron, Erez, & Naveh, 2004). When an entrepreneur considers opportunity creation in uncertainty, they must learn through experimentation (Knight, 1921). However, interpreting the results of their

experimentation can be enigmatic for entrepreneurs because each situation is unique if only because of the passage of time. How could they know *a priori* what they need to learn in the new, uncertain context? The exercise is therefore largely mental; a series of mental gymnastics between imagination, insight, and creation.

Significant entrepreneurship research views creativity as a personality trait regularly utilized by entrepreneurs to recognize opportunities and enhance business performance, but is encouraged or discouraged by the environmental context (Baron & Tang, 2011; DeTienne & Chandler, 2004; Dimov, 2007; Sarooghi et al., 2015; Ward, 2004). In a recent study Weinberger, Wach, Stephan, and Wegge (2018) departed from a strictly trait view to include a state view, where creativity is malleable and varies within the individual based on personal and environmental factors (Shalley, Zhou, & Oldham, 2004). Morris et al. (2012b) suggested that what someone starts out to create is rarely what they wind up with. In their entrepreneurial process view, the entrepreneur does not independently create a venture, but rather, both the entrepreneur and the venture co-create each other with the final outcome being unknowable *ex ante*. Allen and Thomas (2011) presented a dual process view of creativity where creative thought can be subconscious and intuitive, or deliberate, conscious, and purposive. In this regard, opportunity creation is distinct from opportunity recognition and opportunity discovery. For example, Baron (2004) integrated signal detection theory and regulatory focus as an effective method for answering the "why" questions of entrepreneurship, such as ''Why are some entrepreneurs better than others at identifying viable opportunities?'' Baron posited that the integration of the theories described successful and unsuccessful entrepreneurs because while both groups would be highly motivated to notice actual opportunities,

those who are more successful would likely be able to distinguish between excellent and less valuable opportunities, and less concerned with missing out on an opportunity because they understand new opportunities will always be available. In these instances, the entrepreneur would be operating in opportunity recognition or opportunity discovery. In opportunity creation, according to Morris et al. (2012b), since the opportunity is being created and cannot be known *ex ante*, the value or worth of the opportunity would depend on how well it is created, and not based on the entrepreneur's prognostication.

Responding to the assertion of McMullen and Shepherd (2006) that for alertness to be entrepreneurial it must include judgment and a proclivity toward action, Tang et al. (2012) expanded the role of alertness beyond Kirzner's (1997, 1999) conception of entrepreneurial alertness to include evaluation and judgment. Tang and colleagues contend their depiction of alertness allows for entrepreneurial action to evolve from signals gathered during evaluations. Their evaluation and judgment component is where the value of new information is assessed on the bases of potential new business opportunities and in so doing, the entrepreneur is enhancing their situational awareness. I think however, the Tang et al. (2012) conception of alertness to include evaluation and judgment is a stretch of what alertness is, and in effect hampers our understanding of both alertness and entrepreneurial judgment. In my view, alertness and entrepreneurial judgment are critical and distinct aspects of entrepreneurship and should be viewed as such. In the EJDM model developed here, alertness, or as Tang et al (2012) also mention, situational awareness is active in the entrepreneur prior to the affective event, and is likely a significant reason the entrepreneur might choose to move toward opportunity creation.

Dispositional Affect. Considerable research from the behavioral and social science fields has linked positive affect to beneficial outcomes such as a heightened ability to manage stress, higher self-efficacy, and the ability to generate novel ideas (Baron, 2008; Lyubomirsky, King, & Diener, 2005; Weiss & Cropanzano, 1996). The field of entrepreneurship demonstrated other benefits such as enhanced creativity (Baron & Tang, 2011), confidence and resilience (Hayward Forster, Sarasvathy, & Fredrickson, 2010), improved focus (Foo et al., 2009), and passion (Cardon, Wincent, Singh, & Drnovsek, 2009). However, positive affect may not always produce positive results. For example, Baron, Hmieleski, and Henry (2012) developed a framework to demonstrate that the relationship between very high levels of dispositional positive affect (DPA) and performance on tasks related to firm growth and venture founding is curvilinear. Cardon et al. (2009) suggested that very high passion can have detrimental effects for the firm because entrepreneurs can lose passion once the firm is established, or they continue too long on a path doomed for failure but they are not able to detect negative signals that threaten their intense positive feelings for the project. Zhou and George (2007) detailed a *dual-tuning theory* where high positive affect is not always ideal for creativity; in some instances, negative affect is actually more productive.

Dispositional affect is a stable, trait like orientation across multiple situations that serves as a baseline and the affective place of return following the experience of an affective event where temporary changes in affect occur (Baron et al., 2012). Similarly, Russell (2003) described core affect as a mood or feeling that at any given time could be represented by a single point (see figure 1), or a blend between pain-pleasure and activation-deactivation. In figure 1 the horizontal axis ranges from agony on the left to

elation or the right, while the vertical axis ranges from sleep or unconsciousness at the bottom to frenetic activity at the top. The physiological process explaining exactly how affect changes is not fully understood, but Russell (2003) makes the point that the causal story can be exceedingly complex.

Because entrepreneurship is filled with uncertainty, and each phase of the process has assorted tasks requiring a diverse set of skills, entrepreneurs may experience numerous affective changes within their own entrepreneurial process. As a result, entrepreneurs with higher and lower DPA or DNA likely respond to affective events differently, and those responses likely influence the quantity and quality of their subsequent creative ideas. I operationalize opportunity creation ideas as a creative idea for a product, service, process, or new venture in response to a state affect inducing business scenario.

In elucidating the role of affect in entrepreneurship, Baron (2008) described numerous ways affect impacts cognition. For example, entrepreneurs with DPA have more favorable perceptions about experiences than those with dispositional negative affect (DNA) and are more alert to external changes in the environment (Isen, 2002). DPA entrepreneurs rely more heavily on heuristic thinking (mental shortcut) that has been acquired as a result of previous experience, and DPA has a significant impact on creativity, cognitive flexibility, and effective decision making (Baron, 2008; Fredrickson, 2001). DNA entrepreneurs will be less persuaded to act as a result of positive affect inducing events, but when they do, they will likely utilize more conscious processing that can yield positive results (Forgas & George, 2001). When DNA entrepreneurs respond to

an affective by pulling back or attempting to focus on the "whys" of the event, they would be less inclined to expend cognitive energy thinking of a new creative idea.

Despite DPA entrepreneur's creativity, without negative affect they may not evaluate their ideas, carefully, or at all (Zhou & George, 2007). However, if DPA entrepreneurs do spend time thinking deliberately and purposively (slow EJDM), the quality of their ideas should improve. This is true even if the decision is to do nothing following repeated unsuccessful efforts to develop an opportunity creation idea. DNA entrepreneurs will be less likely to utilize effective cognitive strategies when dealing with a negative state inducing event and as a result may pull back and avoid action or even rely on alcohol or drugs as a form of denial (Baron, 2008). As a result of this logic I bring the following hypotheses:

Hypothesis 1: There is a positive relationship between enterpreneurs' positive state affect and the number of opportunity creation ideas they generate.

Hypothesis 1a: This relationship is moderated by the entrepreneurs' dispositional affect, such that it will be stronger for entrepreneurs high in DPA than those high in DNA.

Hypothesis 2: There is a positive relationship between enterpreneurs' positive state affect and the quality of opportunity creation ideas they generate.

Hypothesis 2a: This relationship is moderated by the entrepreneurs' dispositional affect, such that it will be stronger for entrepreneurs high in DPA than those high in DNA.

Hypothesis 3: There is a negative relationship between enterpreneurs' negative state affect and the number of opportunity creation ideas they generate.

Hypothesis 3a: This relationship is moderated by the entrepreneurs' dispositional affect, such that it will be stronger for entrepreneurs high in DNA than those high in DPA.

Hypothesis 4: There is a negative relationship between enterpreneurs' negative state affect and the quality of opportunity creation ideas they generate.

Hypothesis 4a: This relationship is moderated by the entrepreneurs' dispositional affect, such that it will be stronger for entrepreneurs high in DNA than those high in DPA.

Entrepreneurial Judgment and Decision Making (EJDM)

Tversky and Kahneman (1974) sparked a renewed interest in the conversation regarding judgment in the midst of uncertainty. The growing body of research on entrepreneurial judgment as the decision-making mechanism for the entrepreneur has explored how entrepreneurs think differently than non-entrepreneurs (Busenitz & Barney,

1997) and how uncertainty, time pressures, and emotions impact decision making (Baron, 2004, 2006). Others have examined how opportunities are analyzed (McMullen & Shepherd, 2006), how opportunities are discovered and become projects (Casson & Wadeson, 2007), and how entrepreneurial judgment applies to the firm (Foss & Klein, 2008, 2012). EJDM as developed in this paper is operationalized as a conscious decision process that culminates when a new intention is establishment or set. EJDM selects one desired end over another, and when actions change, it is because a new judgment was made that shifted intention. Consequently, if intention determines action, then action follows EJDM. When responding to an affective event, the entrepreneur selects a response that is perceived to enhance or preserve subjective well-being (Kahneman, 2011). The choice is made initially to respond quickly and intuitively or to deliberate with an effortful, costly (both in terms of mental and physical resources as well as time) EJDM process prior to determining whether or not action is the best option. Stanovich and West (2000) described "System 1" and System 2" cognition as an appropriate means of explaining how EJDM occur, fast or slow. Whether EJDM is fast (System 1, automatically, impulsively, pre-reasoned) or slow (System 2, deliberate, effortful, consciously reasoned), it is a purposeful decision based on the available knowledge. Entrepreneurship involves uncertainty (e.g. Bylund & McCaffrey, 2017; Mises, 1998; Shackle, 1969; Tversky & Kahneman, 1974) and the entrepreneur is limited by bounded rationality (Simon, 1979), so they resort to the type of EJDM they perceive to be most appropriate for the situation. While System 1 and System 2 verbiage suggests a dichotomy, it is important to reiterate that they are both EJDM and should be viewed as

occurring along a continuum beginning with a subconscious pre-reasoned (System1) response moving toward higher conscious reasoning logics (Lerner et al., 2018).

Fast EJDM. Individuals (including entrepreneurs) typically identify with being thoughtful, logical, and reasonable when thinking about their decision making, intuitions, and behaviors; but the reality is most daily activity is directed by System 1 automatic judgments that are made quickly as an impulsive response to ongoing needs and demands (Kahneman, 2011). For example, the entrepreneur may acknowledge that they tend to act quickly, even impulsively, but they would not see that tendency as unreasonable. Rather, they would say they are making good, reasonable decisions, and the choice to act is preferred over costly, effortful, intentional deliberation because they believe it is the right thing to do, or at least good enough to satisfice for the time being. In order for judgment to be entrepreneurial, McMullen (2010, 2015) suggests that prior to action, the entrepreneur must to some extent imagine how the new product or service might be received by potential stakeholders and the market. For this to occur in System 1, the judgment as well as imagination would be pre-reasoned; that is prior to stimulus. System 1 fast (snap) is a routinized default response (institutionalized) that has been developed over time and is shaped by previous experience, biological inheritance, and as passed down or learned cultural and social norms (Mises, 1998). In Structuration Theory Giddens (1984) refers to these norms as “scripts”, while Tversky and Kahneman (1974) refer to them as judgment heuristics; both consummate with a “good enough” decision when time is of the essence, but often result in poor results when utilized to solve challenging problems, particularly those that require knowledge from an unfamiliar domain.

A sizeable literature acknowledges that conscious deliberation is not required for action (e.g. Bridgett, Burt, Edwards, & Deater-Deckard, 2015; Lerner et al., 2018; Lerner, Verheul, & Thurick, 2017; Sharma, Markon, & Clark, 2014; Wiklund, Patzelt & Dimov, 2016). Fast EJDM is chosen when the impressions or intuitions generated are perceived to adequately answer the perceived well-being question (Kahneman, 2011). The default response is to prefer System 1's intuition because System 2 is costly, both in time and effort. The decision to shift is triggered when the affective event(s) (internal or external stimulus) is personally significant because it affects either the individual directly, or the people and cause the individual cares about. The affective event(s) could be a moment of insight that in effect, introduces new information, or an occasion where the pre-reasoned script fails to adequately address the problem. It is more intuitive to think of an insight moment as generating positive affect, however this is not always the case. For example, suppose the insight moment was the realization that a previously utilized script or intuition failed to adequately address or solve the current problem. In this case, insight would invoke a shift to System 2 EJDM. The choice to shift is based on initial perceptions of cost: what is the cost in time and the cost in effort to act? Certainly, if the problem is important enough, or personally significant enough, then it might warrant the cost required to find an adequate solution.

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The second consideration is the cost in effort which is related to the Law of Least Effort (Kool, McGuire, Rosen, & Botvonick, 2010). Kool et al (2010) applied the law to both physical and cognitive effort and suggest the tendency is to conserve energy whenever possible because of the perception that time could be better spent elsewhere in order to economize opportunity costs. In addition, when the cost of "being right" is perceived to be low, the cost benefit analysis would defer to a System 1 intuition that

flows from the established script or routine. The mechanism behind the use of fast or slow EJDM is how much conscious processing is perceived to be needed that would best enhance or protect perceived subjective well-being. As a result of this logic I bring the following hypotheses:

Hypothesis 5: There is a positive relationship between DPA enterpreneurs and the quantity of opportunity creation ideas generated.

Hypothesis 6: There is a negative relationship between DPA enterpreneurs and the quality of opportunity creation ideas generated.

Slow EJDM. System 1 fast EJDM works well in environments where the context is familiar, or at least similar enough to situations previously served well by established rules of thumb (norms, scripts, institutions), but begin to deteriorate or be questioned following the experience of a novel event because it produces behavioral uncertainty (Mises, 1998). Without a contextual change or an environmental shift, individuals are seldom motivated to change thinking or behavior (Companys & McMullen, 2007) and the script becomes entrenched. To some degree, System 1 and System 2 inform one another and feedback between the two influence the repertoire of System 1's bank of scripts by further entrenching them or making slight modifications (Kahneman, 2011). However, with the introduction of uncertainty from the experience of an affective event(s) the individual may arrive at a lengthy impasse (Fleck & Weisberg, 2004, 2013; Ohlsson, 2011; Perkins, 2000; Weisberg, 2006a, 2006b, 2015). The impasse can occur

immediately following the experienced event, or after initial attempts to utilize System 1 scripts resulted in unsatisfactory outcomes.

When impasse occurs immediately after the affective event, the entrepreneur, nascent or experienced is somehow *taken aback* by the experience, for a number of reasons including personal significance, threat to well-being, or novelty. Individual emotional reactions to an event are predicated on a number of evaluations related to the personal significance assigned (Schmidt, Tinti, Levine, & Testa, 2010). The idea that people can respond differently to similar situations is a central tenant of appraisal theorists (Siemer, Mauss, & Gross, 2007). Appraisal theorists do not consider emotions to be hard wired in the brain lying dormant until the appropriate event occurs in a way that activates a predicted result (Moors & Scherer, 2013). Rather, emotions are emerging phenomena in that they interact with the environment and gradually occur as new information is processed, checked, and appraised. Considering the question of why do some recognize or create opportunities while others do not, appraisal theorists contend there are infinite appraisal configurations because of the significant differences in how individuals appraise experienced events (Scherer, 2009). Given the fact that individuals experience significant events differently, and that events elicit unique emotions for affected individuals, it is not surprising that some would move past an affective event and create a new opportunity, while others may respond by pulling back, and in effect, be paralyzed by the novelty and unexpectedness of the experience.

In affective events theory, a highly charged emotional or personally significant affective event results in higher magnitude cognitive states. This is due to a heightened activation that follows, in part, from an obsessive passion (Vallerand et al., 2007) for

solving the problem. This obsession increases the time and cognitive resources that can be allocated towards solving the problem. The heightened cognitive activation also changes the fundamental pattern of connections between cognitively stored semantic information, leading to a cognitive state of heightened semantic interdependence and criticality from which radical insights are more likely to occur (Jarman, 2016; Weisberg, 2015). In deliberate System 2 EJDM, the process culminates when the entrepreneur sets or establishes a new intention with a judgment that is perceived to enhance or protect subjective well-being; whether the intention is to modify behavior or not. In fast System 1 EJDM, the entrepreneur relies on pre-reasoned intentions or scripts. I suspect DPA entrepreneurs will be confident in their intuition (System 1 EJDM) following the experience of an affective event and therefore not likely to engage in slow deliberate EJDM regardless of entrepreneurial experience. However, experience likely leads to better decision-making quality when using System 1 EJDM. The reasons may differ for why experienced or nascent entrepreneurs consciously choose to think longer about potential opportunity creation ideas (utilizing System 2 EJDM), it is likely the quality and quantity of their opportunity creation ideas will improve for both. Conversely, DNA entrepreneurs might be more likely to pull back or ruminate on the "whys" and "what ifs" following the affective event, and not attempt to discover a solution to an issue that arose as a result of experience. But, as with DPA entrepreneurs, I suspect when they do spend more time thinking (utilizing System 2 EJDM) the quantity and quality of their ideas will improve. On the basis of this logic I propose the following:

Hypothesis 7: The relationship between dispositional affect and the number of opportunity creation ideas is moderated by the time spent consciously and subconscious utilizing EJDM, such that more time utilizing EJDM is positively related to the number of opportunity creation ideas.

Hypothesis 8: The relationship between dispositional affect and the quality of opportunity creation ideas is moderated by the time spent consciously and subconscious utilizing EJDM, such that more time utilizing EJDM is positively related to the quality of opportunity creation ideas.

Insert Figure 1 About Here

CHAPTER III

METHODOLOGY

The objective of the study was to examine the emotional and cognitive factors utilized in opportunity creation. Despite numerous advances, ongoing challenges persist for management scholars regarding identification of the factors which play a role in the strategies used for creative thought; particularly, what are the direct causal links and their antecedents (Aguinis & Bradley, 2014; Shepherd, Patzelt, & Baron, 2013). The challenge is exacerbated by research designs that primarily include cross-section data and inadequate construct validity (Aguinis & Edwards, 2014). Grant and Wall (2009) urged researchers to incorporate quasi and experimental design in attempts to elucidate causal relationships. However, experimental designs are not without a number of concerns, including external validity because they occur outside of the natural environment (Scandura & Williams, 2000) and they place people in situations that are only tenuously related to their actual cognitive behavior, experimental realism, or whether participants are experiencing the experiment as similar to a real world experience (Aguinis & Bradley, 2014), demand characteristics, where participant do what they think the

experimenter wants them to do (Grégoire et al, 2010b), and retrospective or recall bias. In consideration of these issues, this study utilizes a modified version of experimental vignette methodology (EVM) (Aguinis & Bradley, 2014), where careful consideration is given to construct scenarios that represent real-world situations in an attempt to elucidate opportunity creation and the antecedent factors that contribute to it. In standard cross-sectional studies, participants are presented a written vignette and asked to make judgments, choices, or preferences; these decisions are intended to capture explicit outcomes, while conjoint analysis and policy capturing designs are used to describe implicit processes (Aguinis & Bradley, 2014).

Study Design

The experiement uses a between design that compares positive disposition entrepreneurs (DPA) and negative disposition entrepreneurs (DNA), where they respond to a positive or negative business manipulation (Atzmüller & Steiner, 2010). The experiment began with a pre-experiment survey consisting of demographic variables and control items, as well as measures of dispositional affect. To best represent a real-world situation, participants were randomly assigned the positive or negative manipulation, where they describe either the best or worst thing that has happened to them since they have owned their business; what they did in response, and how that experience made them feel. The choice to have entrepreneurs relive an actual experience was made to enhance external validity (Scandura & Williams, 2000) and not introduce noise by having them respond to a scenario they may or may not be familiar with. Following the manipulation, respondents were presented the following information and question:

> Because you own a business, you must have believed it was an opportunity worth pursuing. Since you started running your business what new opportunities have you pursued?
>
> Opportunities can include new products, processes, services, procedures, alliances, or new firms. The goal is to think of opportunities that you believe are unique, useful, and as fully developed as possible.

They were given a large text box in which to respond with the intention of invoking multiple opportunities, and were not allowed to continue the experiment until they typed something in.

Immediately following participants were presented a follow up question:

> What new opportunities have you thought of but have not yet pursued or that you can think of now? This may be something you have thought of and said to yourself someone should make or do _____.
>
> Opportunities can include new products, processes, services, procedures, alliances, or new firms. The goal is to think of opportunities that you believe are unique, useful, and as fully developed as possible.

Respondents were given a second large text box that also required a response in order to proceed. Following their response, they received the following information:

> Please take a lunch break or complete another task before completing the remainder of the session. The session will not be able to move forward for a minimum of 15 minutes. You may however take as long a break as you need.
>
> When you return from break you will be able to add to the ideas you listed. Any new ideas will count toward a chance to receive an additional $250 e-rewards currency prizes.

When participants return from break they were asked to think back to the situation in their business they described in the first session. As a way of re-establishing the positive or negative manipulation they were shown what they typed in session one regarding the best or worst thing they have experienced in their business and instructed to “Take a

moment to re-live what happened, what you did, and how it made you feel. Once you have recalled the experience, click the arrow to continue." Following click through, the opportunities they listed in session one are re-displayed and the following information is presented: Table

> The next question will ask you to list any opportunities you have pursued that you remembered during break. As a reminder, these were the opportunities you previously listed. Click the arrow to continue.

The experiment then proceeds with the presentation of the following:

> Please list any other opportunities you have pursued that you remembered during the break.
>
> Opportunities can include new products, processes, services, procedures, alliances, or new firms.

Participants are provided another large text box to type any new opportunities they thought of since the first session. The experiment then concludes with the presentation of a final large text box and the following:

> Please list any other opportunities that you thought of during the break, or can think of now.
>
> Opportunities can include new products, processes, services, procedures, alliances, or new firms.

Participants

A national research services company was contracted to recruit a randomized national sample of entrepreneurs and proctor the experiement. Numerous studies have used survey companies in recent management and entrepreneurship research (Courtright, Gardner, Smith, McCormick, & Colbert, 2015; DeCelles, DeRue, Margolis, & Ceranic, 2012; Dillon, Tinsley, Madsen, & Rogers, 2013; Long, Bendersky, & Morrill, 2011). Respondents were recruited through online advertisements where they were informed that

their opinion is valuable and they would be compensated for their participation. Compensation is given in the form of rewards points and is equivalent to approximately $30. In addition to compensation for completion, participants are informed that the best idea as scored by experts would receive an additional $250. One concern with utilizing a research services company to recruit participants is that response rates cannot be reported, which could be problematic in entrepreneurship research because entrepreneurs typically respond less frequently than other individuals (Bartholomew & Smith, 2006; Dennis, 2003). Some of these concerns are mitigated with the recent findings that response rates do not significantly impact entrepreneurial relationships (Rutherford, O'Boyle, Miao, Goering, & Coombs, 2017), and that there is no correlation between effect size and response rates. In spite of these findings, Rutherford et al. (2017) urged researchers to remain diligent in design rigor that addresses potential response rate concerns. All participants were screened using an initial survey question to confirm they were business owners.

A total of 30,510 email invitations to participate were sent to business owners and 907 respondents began the experiment for an initial response rate of 2.9%. Of the 907 participants who began the experiment, 206 actually completed both sessions for a completion rate of 22.7%. Independent samples Ttest found no significant differences between those who completed the experiment and those who did not (see Table 9).

Insert Table 9 About Here

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184 participants indicated they founded their business while 22 reported that they purchased and existing business or a franchise. The businesses were located in 191 different United States zip codes with 41% having existed for 20 years or more while 2% were less than one year old. The sample consisted of 85 females and 121 males between the ages of 18 and 64, with the mean being 41.12 years. One business owner had not yet completed high school, 87 had a bachelor's degree, and 27 reported having a Ph.D., an M.D., or a J.D.

Measures

Affect. To capture dispositional and state affect during the experiment, I utilized the sixteen item Multi-Affect Indicator (Warr, Bindl, Parker, & Inceoglu, 2014), with four items for each quadrant of the circumplex framework, see figure 2. The circumplex framework consists of two positive affective quadrants: *high activation positive affect* (HAPA), *low activation positive affect* (LAPA), and two negative: *high activation negative affect* (HANA), *low activation negative* (LANA). I created four composite variables; one for high and low levels of each quadrant. The scale had a long-term orientation for the pre-experiement survey to capturing dispositional affect (e.g. in the last month), and short term (e.g. while you were thinking of the opportunity creation ideas) orientation for the post-experiment survey to capture changes to affect following the state inducing affective event. Sample items are ranked on a seven-point Likert scale from 1 *Never (0% of the time),* 2 *A little of the time (roughly 1% to 20%),* 3 *Some of the time (roughly 21% to 40%*), 4 *About half the time* (*roughly 41% to 60%),* 5 *Much of the time (roughly 61% to 80%),* 6 *A lot of the time (roughly 81% to 99%),* to 7 *Always (100% of the time).* Sample items include high-activation negative affect (*anxious, worried*), for

high-activation positive affect (*enthusiastic, inspired),* low-activation negative (*depressed, hopeless),* and low-activation positive (*calm, relaxed).* The scale items were presented in random order. The Cronbach's Alpha scores were: HAUA .903, LAUA.846, LAPA .898, and HAPA .915.

Insert Figure 2 About Here

Locomotion and Assessment Scales

Similar to Amato, Baron, Barbieri, Bélanger, and Pierro (2017), I used the twelve item Locomotion and Assessment Scales (Kruglanski et al., 2000). Each seven-item measure captures individual tendencies for Locomotion and Assessment. A sample item for locomotion is ("I enjoy actively doing things, more than just watching and observing") and assessment ("I spend a great deal of time taking inventory of my positive and negative characteristics"). Each entrepreneur rated the extent they agree with statements on a six-point Likert scale from 1 (*strongly disagree*) to 6 (*strongly agree*). The Cronbach's Alpha for Locomotion was .839 and .855 for Assessment.

Opportunity Creation Ideas

Drawing on the Mishra and Henricksen (2013) definition and measure of creative artifacts developed by classroom teachers to convey information creatively, I developed a scale for assessing the quality of the opportunity creation ideas as detailed by DeVellis (2012). The Mishra and Henricksen (2013) definition includes three dimensions designed to capture how *novel*, *effective*, and how well the artifact integrates within a particular context using the term *whole*. They referred to the scale as the NEW (novel, effective,

whole) definition of creativity ideas. The three dimensions are based on the three-factor model of design creativity (Besemer, 1998). The scale consists of words associated with each of the three dimension and is intended to provide a basis for scoring (see table 1). Each opportunity creation idea was initially assigned a score between 1 and 5 for each dimension. A sample score of "1" for novel will likely be "nothing unique of particularly novel, overall lack of substance and content to be consider an opportunity." Conversely, a score of "5" for novel will likely be "extremely unique, surprising, even revolutionary."

Insert Table 1 About Here

After careful examination of the data (591 individual opportunity creation ideas), it was determined that most of the opportunity ideas were similar and could be grouped to make the scoring process more congruent and efficient. I then consulted with two experts (both have previously founded a business and have Ph.D.'s in Entrepreneurship), to score a representative set of opportunity creation ideas. The representative set consisted of 35 ideas that were eventually grouped because similar responses were repeated by multiple participants, such as *add equipment to speed up production, formed new alliances, expanding to other states, and add employees*. The ideas were first scored separately and then, through an iterative process we discussed differences of opinion by email correspondence until a consensus was formed. After the initial scoring another expert was consulted (Ph.D. in Entrepreneurship and current Entrepreneur) to get his opinion on our scoring results. He suggested that rather than follow Mishra and Henricksen (2013) approach of only scoring the 3 dimensions, I should follow DeVellis (2012) scale

development approach and assign a score to all 11 words associated with each dimension to see if the three theorized factors would emerge. At that point a score between 1 and 3 score to each of the 33 words for the same representative opportunity creation ideas as previously grouped and sent those to the first two experts for their opinion. In another iterative round of email discussions, we eventually reached a consensus score for each representative idea. At that the remaining ideas were scored for opportunity creation idea quality.

To look at the underlying dimensions of the scale an exploratory factor analysis was conducted using a principle components analysis DeVellis (2012). The data used was from the sample of 701 participants who failed to complete both sessions but did list 1243 opportunity creation ideas. The first test was to determine if the items were correlated, but not so highly correlated that they wouldn't be uniquely contributing to the explanation of opportunity creation ideas. To test this in Stata, I installed the *factortest* program which utilizes the Bartlett test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. The Bartlett test of sphericity should be significant which means the variables are correlated sufficiently to run the factor analysis; the significance level was less than .001. KMO results should be at least .50 with larger values being more desirable as they indicate overlap but not to the point of hindering the analysis because of multicollinearity. My KMO result was .819. I proceeded to run the factor analysis and then rotated the data orthogonally to make it more interpretable. I then installed the *sortl* program which sorts the factor loadings. Ford, MaCallum, and Tait (1986) recommend retaining factor loading of .400 or greater. Stata initially identified six factors, however several words cross loaded on multiple factors. After three refinements

where items were removed that were either cross loading or had values less than .400, 18 of the original 33 items were retained (see Table 2) and Stata then identified three factors. The Cronbach's Alpha for the retained items in the scale was .900. For the dimension Novel, the Cronbach's Alpha was .928, for Whole .933, and Effective .865.

Insert Table 2 About Here

EJDM

The proxy "time" was used to measure the implicit EJDM strategy used to generate opportunity creation ideas. The reasoning is twofold: first, the deliberate, conscious time thinking increases with the second session; and two, insight and imagination, two components theorized to influence entrepreneurial judgment (Brown et al., 2018; McMullen, 2010, 2015) are strongly associated with happening both consciously, and below the level of conscious awareness (Byrne, 2007; Weisberg, 2006a, 2006b, 2015). As previously hypothesized, time should impact both the quantity and quality of opportunity creation ideas for DPA and DNA entrepreneurs, so additional opportunity creation ideas should be added during the second session, and the quality of second session ideas should increase.

Control Variables

In line with other entrepreneurial decision-making research, controls were used for the entrepreneur's individual differences (e.g. Gimeno, Folta, Copper, & Woo, 1997; Shepherd et al., 2013). These included the entrepreneur's age, education level, gender, and entrepreneurship experience, which was measured by the number of years she or he

has been an entrepreneur. In addition, the entrepreneur's assessment-locomotion predilections were also controlled for (Kruglanski et al., 2000).

CHAPTER IV

RESULTS

To address concerns with self-reported measures related to common methods bias (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003), a Harman's single factor analysis was conducted to confirm a single factor did not explain more than 50% of the variance. The unrotated result was 28.27% indicating there are likely no serious concerns with common method bias. I also conducted a multicollinearity test using the Variance Inflation Factor (VIF) to see if serious multicollinearity exists between the Multi-Affect Indicator (Warr et al., 2014), and the Locomotion/ Assessment measure (Kruglanski et al., 2000). I repeated the regression six times to allow every variable to be treated as the dependent variable followed by the VIF command. If the VIF score is below 10 then there is no egregious multicollinearity among the variables. The highest VIP score after the regressions was 2.20.

Testing the Hypothesized Model

To test the twelve hypotheses a Multivariate Analysis of Variance (Manova) was utilized to test multivariate differences between dispositionally positive entrepreneurs (DPA) and dispositionally negative entrepreneurs (DNA). Pillai's criterion was used to

assess differences between groups because it is preferred when there are unequal sample sizes between conditions (Olson, 1979; Tabachnich & Fidell, 2013). The analyses included dependent variables for opportunity creation idea quantity and quality in session one and two, as well as quantity and quality totals. In addition, control variables gender, age, experience, education, locomotion, and assessments were included in the model.

The means, standard deviations, and correlations for the variables in the study are presented in table 3 below.

Insert Table 3 About Here

Multivariate analysis of variance (Manova) results indicate significant direct effects for the manipulation and the six dependent variables, opportunity creation idea quantity in session 1, 2, and quantity total, and quality session 1, 2, and quality total (Pillai's criterion = 0.006, F = 2.653, p =0.014). Dispositional affect was also significant (Pillai's criterion = .006, F = 2.74, p = .102), as was time (Pillai's criterion = .311, F = 11.867, p ~ 0.000). All of the covariate control variables were significantly related in the model. While these results indicate significance, they do not specify the details regarding significance; all the Manova results are reported in Table 4. To further examine these specific results, an analyses of variances (ANOVA) was conducted for each dependent variable and those results are reported in Table 5 (Moore, McIntyre, & Lanivich, in press).

Insert Table 4 About Here

Insert Table 5 About Here

Hypothesis 1 (H1) predicted a positive relationship between positive state affect and the quantity of opportunity creation ideas generated. Results (Table 5) support H1 in session 2 ($\beta = .262$, $p \sim 0.000$), and further supported with pairwise comparisons between groups receiving positive or negative state affect manipulation having significant mean differences for quantity in session 2 (mean difference = 0.157, p = 0.008). Hypothesis 2 (H2) predicted a positive relationship between positive state affect and opportunity creation idea quality. H2 was supported in session 1 ($\beta = -8.328$, $p \sim 0.000$) with significant mean differences between groups occurring in session 2 (mean difference = 4.919. p = 0.012).

Hypothesis 1A (H1A) predicted the relationship in H1would be moderated by the entrepreneurs' dispositional affect, such that this relationship will be stronger for entrepreneurs high in DPA than those high in DNA. Support for H1A was found in session 1 ($\beta = .326$, p = 0.006) as the interaction was significant. Hypothesis 2A (H2A) proposed the relationship in H1would be moderated by the entrepreneurs' dispositional affect, such that it will be stronger for entrepreneurs high in DPA than those high in DNA. Support for H2A was found in session 1 where the interaction was significant ($\beta = 12.245$, $p = 0.003$).

Hypothesis 3 (H3) proposed the relationship between negative state affect and opportunity creation idea quantity would be weaker, and hypothesis 4 (H4) proposed the

relationship between negative state affect and opportunity creation idea quality would be weaker. H3 was supported in session 1 (β = *-0.190, p* ~ 0.000) and further supported with pairwise comparisons between groups having significant mean differences for quantity in session 2 (mean difference = -0.157, p = 0.008). H4 was supported in session 1 (β = *-8.328, p* = ~0.000) with significant mean differences between groups also occurring in session 2 (mean difference = -4.919. p = 0.012). Hypothesis 3A (H3A) and hypothesis 4A (H4A) proposed the relationship in H3 and H4 would be moderated by the entrepreneurs' dispositional affect, such that it will be stronger for dispositionally negative entrepreneurs than those dispositionally positive. No support was found for H3A or H4A.

Hypothesis 5 (H5) proposed there would be a positive relationship between DPA enterpreneurs and the quantity of opportunity creation ideas generated. Support for H5 was found in session 1 (β = -.249, p = 0.004) and in the Quantity Total (β = -0.388, p = 0.004). Further support of H5 was found as there was a significance between DPA and DNA in the Quantity Total (mean difference = -.272, p = 0.005). Hypothesis 6 (H6) predicted there would be a negative relationship between DPA enterpreneurs and the quality of opportunity creation ideas generated. Despite research indicating positive affect increases creativity, this hypothesis was based on the belief that although positive entrepreneurs generate numerous ideas, they may not be high quality ideas. This hypothesis was not supported, instead, there was a significant relationship for DNA entrepreneurs and Quality Total (β = -10.228, p = 0.023), and there is a significant mean difference between DPA and DNA entrepreneurs and Quality Total (mean difference = -

7.118, p = 0.031) meaning DPA entrepreneurs had higher quality opportunity creation ideas.

Hypothesis 7 (H7) and Hypothesis 8 (H8) predicted time would be positively related to opportunity creation idea quantity (H7) and quality (H8). In partial support of H7 and H8 entrepreneurs receiving negative state manipulation generated ideas that were negatively and significantly related to Quantity and Quality in session 1 but positively and significantly related to Quantity and Quality in session 2 (see Table 5). To further test these hypotheses, a paired Ttest was performed to determine if the ideas were significantly different in session1 and session 2. Neither H7 nor H8 were supported as the significant results were opposite in direction from what was hypothesized. Both idea quantity and idea quality were significantly higher in session 1 than session 2 (see Table 8).

CHAPTER V

DISCUSSION

Theoretical Contributions

Understanding how entrepreneurs think is an important task for the field of entrepreneurship (Baron, Franklin, & Hmieleski, 2016; Baron et al., 2012; Baucus, Baucus, & Mitchell, 2014; Moore et al., in press). Findings in this study suggest there are a number of significant differences in how the experience of personally significant positive or negative affective events impacts decision making for dispositionally positive (DPA) and negative (DNA) entrepreneurs. These results offer support for proposals calling for exploration of opportunity creation to better understand entrepreneurial activity in ambiguous settings and contribute to a more unified theory of opportunities (Alvarez & Barney, 2017; George et al., 2016). Entrepreneurs respond to affective events differently based on a number of contextual and environmental factors, and their subsequent decisions significantly impact firm performance (Hmieleski et al., 2015).

With few exceptions focused primarily on failure and grief (e.g. Cope, 2011; Hayton & Cholakova, 2012; Jenkins, Wiklund, & Brundin, 2014; Shepherd, 2003), scant entrepreneurship research has examined negative affect and little is known about how a

dispositionally positive or negative entrepreneur respond following such an experience. Affect influences cognition and subsequent behavior as both a cause and a consequence (Forgas, 1995; Lazarus, 1991). Since entrepreneurship research to date has primarily focused on the consequences of affect throughout the entrepreneurial process (Garcia et al., 2015), this study makes important contributions to the field related to affect as an antecedent of cognition and action.

Russel and Barrett (1999) and Russell (2003) developed a useful framework for understanding how the experience of an emotional event can alter core affect which requires cognitive attention to appraise the event, and determine if action is necessary. Action is preceded in the Russell (2003) model by the recognition of a specific emotion and neural or chemical physiological changes that serve as preparation for action. Findings in this study suggest dispositionally positive and negative entrepreneurs respond similarly to experienced negative events and both groups might benefit from time to process the negative experience before they make important decisions; but, after a period of time, both groups could be capable of generating significantly higher quality and quantity opportunity creation ideas. When an entrepreneur experiences a negative event and makes a decision quickly, findings suggest they may bypass important and beneficial biological factors believed to aid in effective cognitive structuring as proposed by Russell (2003) which could impede decision-making quality and quantity.

This study confirms previous findings that entrepreneurs are generally positive (Baron, Hmieleski, & Henry, 2012) but suggests the experience of a negative affective event can impair short term decision-making ability for even highly positive entrepreneurs, because as Baumeister, Bratslavsky, Finkenauer, and Vohs (2001) argue,

"bad is stronger than good." While all entrepreneurs were significantly impacted by the negative state affect manipulation in sessions 1 and 2, the effect is amplified for dispositionally negative entrepreneurs as their opportunity creation idea quantity total and quality total were also negatively and significantly related to the negative manipulation. One possible explanation for differences between dispositionally positive and dispositionally negative entrepreneurs following the experience of a negative affective event is that dispositionally negative entrepreneurs may require more time following a negative experienced event before they can make important decisions. Baumeister et al. (2001) indicates that the effects of bad events require more time to dissipate than good events. Helson (1964) proposed the Adaption Level Theory suggesting that when the effects of bad events dissipate, people revert to their prior state. In the case of dispositionally negative entrepreneurs they return to a negative state, and as previously indicated, a negative state is not conducive to opportunity creation idea quantity or quality.

Dispositionally positive entrepreneurs appear to generate ideas very quickly, significantly more in session 1 than in session 2. Hypothesis 6 (H6) was not supported as it said because dispositionally positive entrepreneurs generate a high number (quantity) of ideas they would not generate high quality ideas. Dispositionally positive entrepreneurs significantly outperformed dispositionally negative entrepreneurs for both opportunity creation idea quantity and quality totals. However, caution should be used in interpretation of these results, as evidence exists that other factors such as gender, education, and locomotion contribute significantly to idea quantity and quality. Females outperformed males in session 1 quantity and quality, and in quantity and quality totals.

Similarly, locomotion, the self-regulation focus to move quickly from state to state (Kruglanski et al., 2000), was significantly associated with session 1 quantity and quality and quantity and quality totals. Assessment, the self-regulation focus for a critical examination of alternatives (Kruglanski et al., 2000), was negatively and significantly associated with quantity in session 2 and negatively and significantly associated with all quality outcomes. Significance on every dependent variable only occurred with one study variable, education. This finding is counter to many larger than life, almost other-worldly popular depictions of entrepreneurs yet in line with empirical results (e.g. Gimeno et al., 1997; Newbold & Erwin, 2014). Still the result is surprising suggesting education, not experience, may be more important than any other individual or environmental factor regarding quality entrepreneurial decision-making.

The current research also contributes to the literature as the first known study to explore the interaction of dispositional and state affect on opportunity creation idea quantity and quality. As highlighted by George et al. (2016), this study contributes to the largely unexplored opportunity creation construct as an attempt to elucidate a more robust and unified theory of opportunities, advances knowledge regarding the entrepreneur's response to personally significant affective events (Morris et al., 2012), and how the response changes over time. Because entrepreneurs attach personal significance to their ventures (Cardon et al., 2013), they experience a wide range of emotions. This study advances our understanding of the cognitive mechanisms responsible for entrepreneurial activity (Baron, 2007; Dimov, 2007, 2011; Grégoire, Barr, & Shepherd, 2010; Kautonen, Gelderen, & Fink, 2015; McMullen & Shepherd, 2006) and the role affect may play in the quality and quantity of opportunity creation ideas. The current research also makes

significant methodological contributions with the development and validation of the opportunity creation idea quality scale.

Practical Implications

> There are only two days in the year that nothing can be done. One is called Yesterday and the other is called Tomorrow. Today is the right day to Love, Believe, Do and mostly Live – Dalai Lama XIV

This research links cognitive and affective aspects of entrepreneurial creativity and supports popular conceptions of entrepreneurs as dispositionally positive, confident, and quick thinking. Despite numerous positive outcomes associated with these characteristics, the findings indicate entrepreneurs, particularly following the experience of a negative affect event, may benefit from the advice of the Dalai Lama. Following the advice could mean adopting what Haynie, Shepherd, Mosakowski, and Early (2010) describe as situated metacognition, providing entrepreneurs' knowledge about when a different cognitive strategy may be appropriate. They suggest that by allowing for "intra-individual differences in cognitive strategies", entrepreneurs may improve outcomes (pp. 224). Haynie et al. (2010) extended the discussion regarding entrepreneurs' use of heuristics (Alvarez & Busenitz, 2001; Bryant, 2007; Chiasson & Saunders, 2005) to include how heuristics evolve, what informs them, and how those may change over time or be abandoned.

Metacognitive awareness requires one "to be self-aware, to think aloud, to be strategic, to plan, to have a plan in mind, to know what to know, to self-monitor" (Guterman, 2002: 285), which suggests it requires being consciously aware in the

moment for optimal cognitive functioning. When entrepreneurs rush decision-making in the belief that action will benefit the future, they do reduce cognitive effort (Fiske & Taylor, 1984), and decrease decision making time (Shepherd, McMullen, & Ocasio, 2017), but may miss opportunities presented by failing to fully experience the moment, and in so doing not employ entrepreneurial alertness (Tang et al., 2010). Helfat & Peteraf (2015) highlight the importance of incorporating a micro-foundation of cognitive dynamic capabilities that include attention, implementation, adjustment, and recognition of opportunities. Shepherd, McMullen, and Jennings (2007) argued that knowing the gist of the current environment reduces the tendency of rely to heavily on top-down processing for efficiency sake and thereby increases awareness of possible opportunities that otherwise may have been missed by incorporating instead, a bottom-up strategic approach. Evidence here suggests quality decision-making may benefit from time, and perhaps seeking the advice from those with differing perspectives because they are attuned to different factors occurring in the environment would ultimately serve to increase generation of quality and quantity opportunity creation ideas.

Limitations and Future Research

Despite efforts to design a study that represents real life for the entrepreneur over time, there are limitations with the study. It is possible the state affect manipulation did not actually alter the entrepreneurs' affect because the sample entrepreneurs recalled a previously experienced event. It is unclear whether or not recall of the experienced event produced the same affective strength as the initial experience or whether there was a difference in affective strength between positive and negative manipulation. This issue is typically addressed with a manipulation check utilizing a pre-test prior to the actual

experiment (e.g. Clapham, 2001; Williams, Wood, Mitchell, & Urbig, 2019). however, these checks are done on pre-defined manipulations. Since the entrepreneurs in this study describe an event specific to them as their manipulation, there was no way to perform a manipulation check. This possible could explain why there was little variance in overall opportunity creation idea quantity or quality regardless of manipulation received. Future research could include real time state manipulation as opposed to having entrepreneurs relive an experienced affective event. Another concern is with the opportunity creation idea output being largely reliant on recall. Ideally, future research could utilize virtual reality or eye tracking techniques where an entrepreneur creates an idea in real time based on prompts or cues presented in a manner that is theorized to represent the entrepreneurial process. This technique could also illuminate aspects of opportunity creation versus opportunity discovery. A final limitation is the sample of only U.S. entrepreneurs. Future research could increase generalizability by including a more diverse international sample.

Conclusion

Entrepreneurs play an important role as economic drivers and job creators in society. Despite this positive impact, failure rates of entrepreneurial ventures remain high. Given entrepreneurships' potential, understanding entrepreneurial decision-making in response to personally significant affective events is critically important because, as has been noted (e.g. Baron, 1998), individual cognitive differences can offer important insights related to the entrepreneurial process. Without an opportunity there is no entrepreneurship (Short et al., 2010). Entrepreneurs must navigate in a world of bounded rationality to create, evaluate, and exploit quality opportunities in order to succeed.

Responding to affective events effectively requires interpreting and disseminating countless signals emanating from increasingly dynamic and uncertainty environmental sources. This dissertation represents an attempt to address these issues and provide meaningful knowledge that would assist entrepreneurs generate quality and quantity opportunity creation ideas.

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APPENDICES

MEASURES

Survey 1 Questions/ Measures

Qualifying Question:

1. What best describes your current level in your job?
    - Business Owner/Co-owner
    - Manager
    - Associate
    - None of the above

Control Variables:

1. Have you ever founded a company?
    - Yes
    - No
2. Have you ever worked full time in a company you have owned or co-owned?
    - Yes
    - No
3. How long have you owned a business?
    - Less than 1 year
    - 1-3 years
    - 4-7 years
    - 8-12 years
    - 13-19 years
    - 20 years or more
4. In addition to yourself, how many employees does your company have?
    - Zero
    - 1-2
    - 3-10
    - 11-20
    - 21-50

51-99
100+

5. What is the zip code where your business headquarters are located?
   Text box
6. What were your last year's business revenues?
   $1000 or less
   $1001-$10,000
   $10,001-$50,000
   $51,000-$100,000
   $100,001-$250,000
   $250,001-$1,000,000
   More than $1,000,000
7. What is your Gender?
   0 Female
   1 Male
8. What is your age in years?
   Dropdown menu (18-80+)
5. What is the highest level of education you have completed?
   Did not graduate High School
   High School or Equivalent
   Some College
   Associates Degree
   Bachelor's Degree
   Master's Degree
   Doctoral Degree
   Professional Degree e.g. JD,MD

Affect

(1st Survey) Please think of how you have felt the month. How often have you felt?
   Nervous
   Calm
   Depressed
   Excited
   Worried
   Joyful
   Hopeless
   Relaxed
   Anxious
   Ease
   Enthusiastic
   Dejected
   Laid-back
   Despondent
   Inspired
   Tense

Responses

1. *Never* (0% of the time)
2. *A little of the time* (1% to roughly 20%)
3. *Some of the time* (21% to roughly 40%)
4. *About half the time* (41% to roughly 60%)
5. *Much of the time* (61% to roughly 80%)
6. *A lot of the time* (11% to roughly 99%)
7. *Always* (100% of the time)

(2nd Survey) Please think of how you felt while thinking of ideas. How often did you feel?

Nervous
Calm
Depressed
Excited
Worried
Joyful
Hopeless
Relaxed
Anxious
Ease
Enthusiastic
Dejected
Laid-back
Despondent
Inspired
Tense

Responses

1. *Never* (0% of the time)
2. *A little of the time* (1% to roughly 20%)
3. *Some of the time* (21% to roughly 40%)
4. *About half the time* (41% to roughly 60%)
5. *Much of the time* (61% to roughly 80%)
6. *A lot of the time* (11% to roughly 99%)
7. *Always* (100% of the time)

Notes: Subscale scoring- The sum of each quadrant

High activation negative affect: *anxious, nervous, tense, worried*
High-activation positive affect: *enthusiastic, excited, inspired, joyful*
Low-activation negative affect: *dejected, depressed, despondent, hopeless*
Low-activation positive affect: *ease, calm, laid-back, relaxed*

Locomotion and Assessment

Locomotion items

1. I don't mind doing things even if they involve extra effort.
2. I am a "workaholic."
3. I feel excited just before I am about to reach a goal.
4. I enjoy actively doing things, more than just watching and observing'
5. I am a "doer."
6. When I finish one project, I often wait awhile before getting started on a new one. (reverse-scored)
7. When I decide to do something, I can't wait to get started.
8. By the time I accomplish a task, I already have the next one in mind.
9. I am a "low energy" person, (reverse-scored)
10. Most of the time my thoughts are occupied with the task I wish to accomplish.
11. When I get started on something, I usually persevere until I finish it.
12. I am a "go-getter."

Assessment items

1. I never evaluate my social interactions with others after they occur, (reverse-scored).
2. I spend a great deal of time taking inventory of my positive and negative characteristics.
3. I like evaluating other people's plans.
4. I often compare myself with other people.
5. I don't spend much time thinking about ways others could improve themselves, (reverse-scored).
6. I often critique work done by myself or others.
7. I often feel that I am being evaluated by others.
8. I am a critical person.
9. I am very self-critical and self-conscious about what I am saying.
10. I often think that other people's choices and decisions are wrong.
11. I rarely analyze the conversations I have had with others after they occur, (reverse-scored)
12. When I meet a new person I usually evaluate how well he or she is doing on various dimensions (e.g., looks, achievements, social status, clothes)

Responses

Please indicate the extent to which you endorse each item.

6-point Likert scale 1 (*strongly disagree*), 2 (*disagree*), 3 (*slightly disagree*), 4 (*slightly agree*), 5 (*agree*), 6 (*strongly agree).*

TABLES

Opportunity Creation Dimensions	
Novel 0 (low) -1(high)	Unique, Surprising, Fresh, Astonishing, Astounding, Radical, Revolutionary, Pioneering, Influential, Trendsetting, Unusual
Effective 1 (low) -5(high)	Viable, Significant, Necessary, Sensible, Logical, Relevant, Appropriate, Useful, Operable, Valuable, Essential
Whole 1 (low) -5(high)	Big-picture, Thoughtful, Intentional, Conscious, Purposeful, Helpful, Lofty, Good, Developed, Inclusive, Considerate

Table 1. Words associated with each dimension of opportunity creation ideas.

Retained Opportunity Creation Dimensions	
Novel	Unique, Surprising, Fresh, Astounding, Radical, Revolutionary, Influential, Unusual
Effective	Necessary, Useful, Operable, Valuable
Whole	Conscious, Purposeful, Lofty, Good, Inclusive, Considerate

Table 2. Words associated with each dimension of opportunity creation ideas.

Table 3. Means, Standard Deviations, Correlations

	Mean	Std. Deviation	Gender	Entrepreneur	Experience	Education	Locomotion	Assessment	State Aff	Disposition	Quantity_Set1	Quantity_Set2	Quantity Total	Comp Quality
Gender	0.41	0.492	1.00											
Entrepreneur	0.89	0.309	-.06**	1.00										
Experience	4.59	1.451	-.22**	.04*	1.00									
Education	5.03	1.448	-.10**	.17**	0.01	1.00								
Locomotion	46.13	5.896	.18**	.10**	-.10**	.10**	1.00							
Assessment	36.20	7.467	0.01	.04*	-.11**	.10**	.31**	1.00						
State	0.50	0.500	.07**	-0.03	0.01	.05**	0.01	0.00	1.00					
Disposition	0.84	0.362	-.08**	-0.02	-0.01	-.04*	.05**	-.30**	0.00	1.00				
Quantity_Set1	1.68	1.172	.17**	.04*	0.00	.09**	.14**	0.02	.08**	0.02	1.00			
Quantity_Set2	1.08	1.152	-0.02	-0.03	.04*	.07**	-0.02	-.05**	-.10**	.04*	.16**	1.00		
Quantity_Total	2.80	1.789	.09**	0.01	0.03	.10**	.09**	-0.02	0.00	.06**	.75**	.73**	1.00	
Comp Quality	6.56	13.477	0.02	0.01	0.00	.04*	0.04	-0.01	0.00	0.02	.23**	.23**	.31**	1.00

*Note. N=206 *p< .05 **p<.01*

Table 4: Multivariate Analysis of Variance Results

	Multivariate Results			
Main Effects	Pillai's Trace	Wilks' Lambda	F	P
State Positive	0.006	0.994	3.242[b]	0.006
Disposition Positive	0.006	0.994	3.348[b]	0.005
State Positive * Positive Dis	0.007	0.993	3.909[b]	0.002
Covariates				
Intercept	0.009	0.991	4.929[b]	0.000
Female	0.060	0.940	36.787[b]	0.000
Age centered	0.021	0.979	12.192[b]	0.000
Experience	0.015	0.985	8.860[b]	0.000
Education	0.021	0.979	12.195[b]	0.000
Locomotion	0.034	0.966	20.188[b]	0.000
Assessment	0.024	0.976	13.948[b]	0.000

Dependent Variables	R2
Quantity Session 1	0.059
Quantity Session 2	0.021
Quantity Total	0.033
Quality Session 1	0.056
Quality Session 2	0.024
Quality Total	0.038

b. Exact statistic

c. Computed using alpha = .05

Table 5. Parameter Estimates

Dependent Variable		B	Std. Error	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Quantity Set1	Intercept	0.194	0.206	0.937	0.349	-0.211	0.598
	Gender (Female=1)	0.390	0.046	8.487	0.000	0.300	0.480
	Age centered	0.004	0.002	1.547	0.122	-0.001	0.008
	Experience	0.023	0.016	1.407	0.159	-0.009	0.055
	Education	0.070	0.015	4.715	0.000	0.041	0.100
	Locomotion	0.022	0.004	5.616	0.000	0.014	0.030
	Assessment	-0.001	0.003	-0.387	0.699	-0.008	0.005
	[State Affect=.00]	-0.190	0.047	-4.043	0.000	-0.283	-0.098
	[Disposition=.00]	-0.249	0.086	-2.900	0.004	-0.418	-0.081
	[State Affect=.00] * [Disposition=.00]	0.326	0.118	2.755	0.006	0.094	0.558
Quantity Set2	Intercept	0.861	0.207	4.153	0.000	0.455	1.268
	Gender (Female=1)	0.009	0.046	0.203	0.839	-0.081	0.100
	Age centered	-0.001	0.002	-0.364	0.716	-0.005	0.004
	Experience	0.031	0.016	1.867	0.062	-0.002	0.063
	Education	0.063	0.015	4.188	0.000	0.033	0.092
	Locomotion	-0.003	0.004	-0.651	0.515	-0.010	0.005
	Assessment	-0.006	0.003	-1.999	0.046	-0.013	0.000
	[State Affect=.00]	0.262	0.047	5.553	0.000	0.170	0.355
	[Disposition=.00]	-0.003	0.086	-0.034	0.973	-0.172	0.166
	[State Affect=.00] * [Disposition=.00]	-0.211	0.119	-1.773	0.076	-0.444	0.022
Quantity Total	Intercept	0.953	0.320	2.979	0.003	0.326	1.580
	Gender (Female=1)	0.368	0.071	5.163	0.000	0.228	0.507
	Age centered	0.001	0.004	0.187	0.851	-0.006	0.008
	Experience	0.064	0.025	2.525	0.012	0.014	0.114
	Education	0.134	0.023	5.824	0.000	0.089	0.180
	Locomotion	0.023	0.006	3.767	0.000	0.011	0.035
	Assessment	-0.008	0.005	-1.684	0.092	-0.018	0.001
	[State Affect=.00]	0.029	0.073	0.400	0.689	-0.114	0.172
	[Disposition=.00]	-0.388	0.133	-2.916	0.004	-0.649	-0.127
	[State Affect=.00] * [Disposition=.00]	0.232	0.183	1.265	0.206	-0.128	0.591

Table 5. Parameter Estimates (continued)

Dependent Variable		B	Std. Error	t	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Quality Set1	Intercept	3.308	7.133	0.464	0.643	-10.678	17.293
	Gender (Female=1)	6.212	1.588	3.911	0.000	3.098	9.326
	Age centered	0.009	0.080	0.116	0.907	-0.148	0.166
	Experience	0.119	0.565	0.210	0.834	-0.989	1.226
	Education	3.036	0.515	5.898	0.000	2.027	4.046
	Locomotion	1.037	0.136	7.609	0.000	0.770	1.305
	Assessment	-0.227	0.112	-2.031	0.042	-0.446	-0.008
	[State Affect=.00]	-8.328	1.626	-5.122	0.000	-11.516	-5.140
	[Disposition=.00]	-10.061	2.967	-3.390	0.001	-15.879	-4.242
	[State Affect=.00] * [Disposition=.00]	12.245	4.090	2.994	0.003	4.226	20.264
Quality Set2	Intercept	27.765	6.862	4.046	0.000	14.310	41.221
	Gender (Female=1)	0.546	1.528	0.357	0.721	-2.450	3.542
	Age centered	0.094	0.077	1.215	0.224	-0.057	0.245
	Experience	0.527	0.543	0.970	0.332	-0.538	1.592
	Education	2.418	0.495	4.882	0.000	1.447	3.389
	Locomotion	0.074	0.131	0.567	0.571	-0.183	0.332
	Assessment	-0.369	0.108	-3.426	0.001	-0.579	-0.158
	[State Affect=.00]	7.931	1.564	5.069	0.000	4.863	10.998
	[Disposition=.00]	-0.168	2.855	-0.059	0.953	-5.766	5.430
	[State Affect=.00] * [Disposition=.00]	-6.024	3.935	-1.531	0.126	-13.739	1.691
Quality Total	Intercept	31.073	10.825	2.871	0.004	9.848	52.298
	Gender (Female=1)	6.758	2.410	2.804	0.005	2.031	11.484
	Age centered	0.103	0.121	0.847	0.397	-0.135	0.341
	Experience	0.645	0.857	0.753	0.451	-1.035	2.325
	Education	5.455	0.781	6.981	0.000	3.923	6.987
	Locomotion	1.112	0.207	5.373	0.000	0.706	1.517
	Assessment	-0.596	0.170	-3.510	0.000	-0.928	-0.263
	[State Affect=.00]	-0.398	2.468	-0.161	0.872	-5.236	4.441
	[Disposition=.00]	-10.228	4.503	-2.271	0.023	-19.059	-1.398
	[State Affect=.00] * [Disposition=.00]	6.221	6.207	1.002	0.316	-5.949	18.391

b. Computed using alpha = .05

Table 6. State Affect Pairwise Comparisons

Dependent Variable	(I) Negative State	(J) Positive	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
State						Lower Bound	Upper Bound
Quantity Set1	.00	1.00	-0.027	0.059	0.642	-0.142	0.088
	1.00	0	0.027	0.059	0.642	-0.088	0.142
Quantity Set2	.00	1.00	0.157*	0.059	0.008	0.042	0.272
	1.00	.00	-.157*	0.059	0.008	-0.272	-0.042
Quantity Total	.00	1.00	0.145	0.091	0.110	-0.033	0.323
	1.00	.00	-0.145	0.091	0.110	-0.323	0.033
Quality Set1	.00	1.00	-2.206	2.023	0.276	-6.172	1.760
	1.00	.00	2.206	2.023	0.276	-1.760	6.172
Quality Set2	.00	1.00	4.919*	1.946	0.012	1.103	8.734
	1.00	.00	-4.919*	1.946	0.012	-8.734	-1.103
Quality Total	.00	1.00	2.713	3.070	0.377	-3.306	8.732
	1.00	.00	-2.713	3.070	0.377	-8.732	3.306

**. The mean difference is significant at the .05 level.*

a. Computed using Helmert differences

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Table 7. Dispositional Affect Pairwise Comparison

Dependent Variable. Dis	(I) Negative Dis.	(J) Positive	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
Quantity Set1	.00	1.00	-0.086	0.063	0.170	-0.209	0.037
	1.00	.00	0.086	0.063	0.170	-0.037	0.209
Quantity Set2	.00	1.00	-0.108	0.063	0.086	-0.232	0.015
	1.00	.00	0.108	0.063	0.086	-0.015	0.232
Quantity Total	.00	1.00	-.272*	0.097	0.005	-0.463	-0.082
	1.00	.00	.272*	0.097	0.005	0.082	0.463
Quality Set1	.00	1.00	-3.938	2.167	0.069	-8.187	0.311
	1.00	.00	3.938	2.167	0.069	-0.311	8.187
Quality Set2	.00	1.00	-3.180	2.085	0.127	-7.267	0.908
	1.00	.00	3.180	2.085	0.127	-0.908	7.267
Quality Total	.00	1.00	-7.118*	3.288	0.031	-13.566	-0.670
	1.00	.00	7.118*	3.288	0.031	0.670	13.566

**. The mean difference is significant at the .05 level.*

a. Computed using Helmert differences

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Table 8. Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Quantity Set1	2.36	440	1.241	0.059
	Quantity Set2	2.01	440	1.141	0.054
Pair 2	Quality Set1	78.21	442	38.022	1.809
	Quality Set2	66.96	442	36.826	1.752

Table 9. Independent Samples Test

		t-test for Equality of Means						
							95% Confidence Interval of the Difference	
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Founder	Equal variances assumed	-0.099	707	0.921	-0.003	0.026	-0.053	0.048
	Equal variances not assumed	-0.099	384.291	0.921	-0.003	0.026	-0.053	0.048
Experience	Equal variances assumed	1.391	707	0.165	0.175	0.126	-0.072	0.421
	Equal variances not assumed	1.428	403.945	0.154	0.175	0.122	-0.066	0.415
Gender	Equal variances assumed	0.362	707	0.717	0.015	0.041	-0.066	0.095
	Equal variances not assumed	0.363	382.374	0.717	0.015	0.041	-0.066	0.095
Age	Equal variances assumed	1.108	707	0.268	0.963	0.869	-0.743	2.669
	Equal variances not assumed	1.176	436.602	0.240	0.963	0.818	-0.646	2.571
Education	Equal variances assumed	2.466	707	0.140	0.298	0.121	0.061	0.536
	Equal variances not assumed	2.473	383.325	0.140	0.298	0.121	0.061	0.536

FIGURES

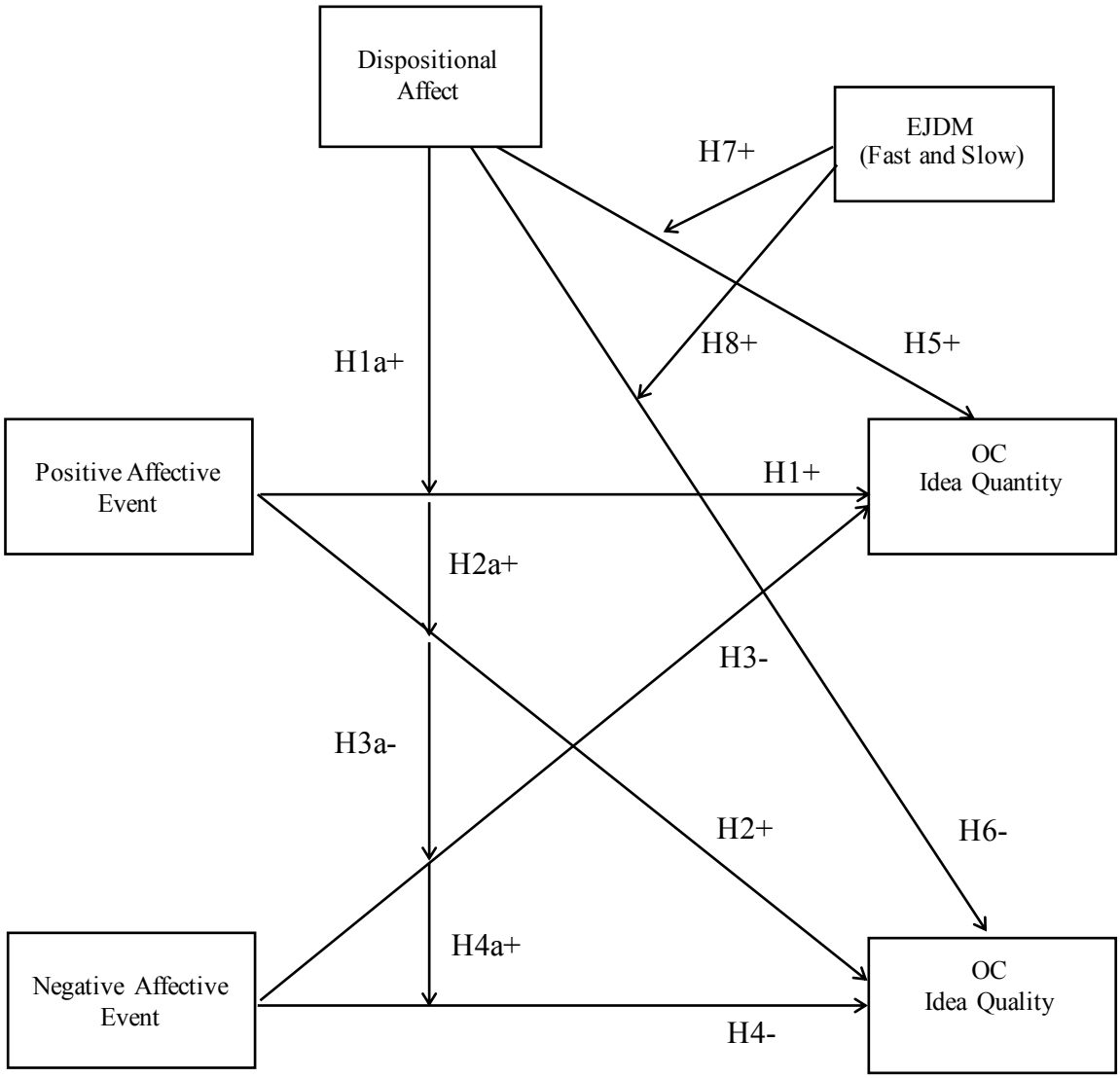

Figure 1. Affective Events Model

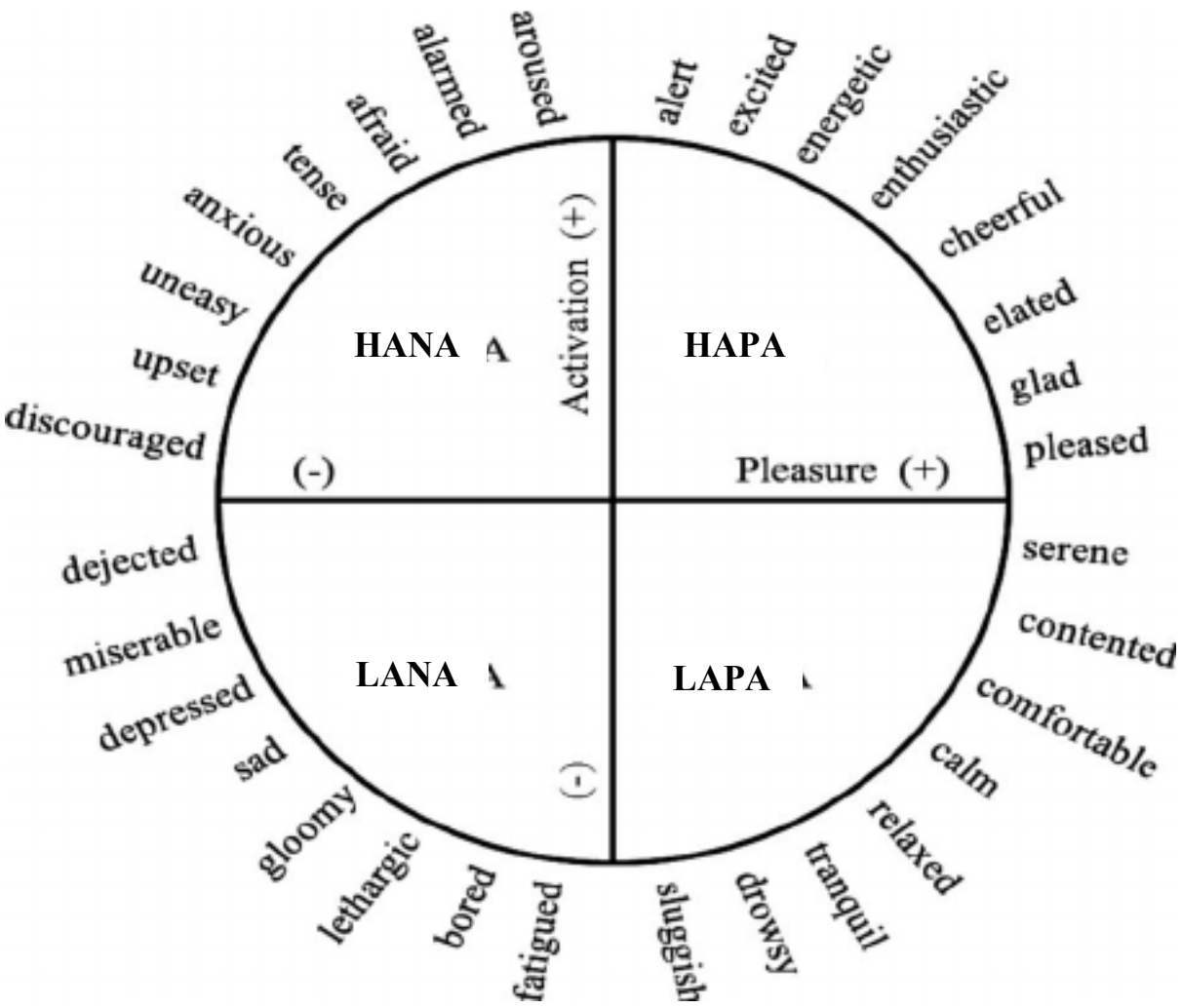

Figure 2: Circumplex Framework

Oklahoma State University Institutional Review Board

Date:	11/08/2018
Application Number:	BU-18-59
Proposal Title:	Opportunity Creation: The effects of affective events and information processing on opportunity creation idea quantity and quality
Principal Investigator:	Lincoln Brown
Co-Investigator(s):	
Faculty Adviser:	Matt w Rutherford
Project Coordinator:	
Research Assistant(s):	
Processed as:	Exempt

Status Recommended by Reviewer(s): Approved

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any recruitment, consent and assent documents bearing the IRB approval stamp are available for download from IRBManager. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be approved by the IRB. Protocol modifications requiring approval may include changes to the title, PI, adviser, other research personnel, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any unanticipated and/or adverse events to the IRB Office promptly.
4. Notify the IRB office when your research project is complete or when you are no longer affiliated with Oklahoma State University.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact the IRB Office at 223 Scott Hall (phone: 405-744-3377, irb@okstate.edu).

Sincerely,
Oklahoma State University IRB

PARTICIPANT INFORMATION

Title of Study: Opportunity Creation: The effects of affective events and information processing on opportunity creation idea quantity and quality.

Purpose: The purpose of the research study is to examine opportunity creation and its antecedents. You must be 18 years or older to participate.

What to Expect: This research study is administered online. Participation in this research will involve completion of two sessions each consisting of a survey and an exercise where you respond to business scenarios by thinking of creative ideas. You may skip any questions that you do not wish to answer. It should take you approximately one hour to complete both sessions.

Risks: There are no risks associated with this project, which are expected to be greater than those ordinarily encountered in daily life. However, this study will present potentially traumatic and / or adverse events that you will respond to. If you experience any kind of psychological or physical discomfort or distress as a result of recounting these events, please inform the principle investigator and or seek help from a licensed professional counselor.

Compensation: Participants who complete both sessions will be entered into a drawing for a $250 prize. In addition, the participant who submits the best (most creative) idea as determined by experts will receive a $250 prize. Participants may also opt in to receive a report indicating what percentile the scored as compared to the other entrepreneurs in the sample. This could be useful in determining how creative a person is when responding to various business occurrences.

Your Rights: Your participation in this research is voluntary. There is no penalty for refusal to participate, and you are free to withdraw your consent and participation in this project at any time.

Confidentiality: The records of this study will be kept private. Any written results will discuss group findings and will not include information that will identify you. Research records will be stored on a password protected computer in a locked office and only researchers and individuals responsible for research oversight will have access to the records. Email addresses of all participants will be kept until the prizes are awarded. Once the surveys are matched and credit is awarded, all names will be deleted from the records for each participant.

Contacts: The researchers conducting this study are Lincoln Brown, Ph.D. Candidate in Entrepreneurship at Oklahoma State University and Dr. Robert Baron, Professor at Oklahoma State University. If you have any questions or concerns, please feel free to contact Lincoln Brown at lincoln.m.brown@okstate.edu. For questions about your rights as a human subject, contact the OSU Institutional Review Board (IRB) at 405- 744-3377 or email irb@okstate.edu.

If you choose to participate:

Please, click NEXT if you choose to participate. By clicking NEXT, you are indicating that you freely and voluntarily and agree to participate in this study and you also acknowledge that you are at least 18 years of age.

It is recommended that you print a copy of this consent page for your records before you begin the study by clicking below.

Approved: 11/08/2018
Protocol #: BU-18-59

Informed Consent- The click-through link to participate or decline is below.

Title of Study: Opportunity Creation: The effects of affective events and information processing on opportunity creation idea quantity and quality.

Purpose: The purpose of the research study is to examine opportunity creation and its antecedents. You must be 18 years or older to participate.

What to Expect: This research study is administered online. Participation in this research will involve completion of two sessions each consisting of a survey and an exercise where you respond to business scenarios by thinking of creative ideas. You may skip any questions that you do not wish to answer. It should take you approximately one hour to complete both sessions.

Risks: There are no risks associated with this project, which are expected to be greater than those ordinarily encountered in daily life. However, this study will present potentially traumatic and / or adverse events that you will respond to. If you experience any kind of psychological or physical discomfort or distress as a result of recounting these events, please inform the principle investigator and or seek help from a licensed professional counselor.

Your Rights: Your participation in this research is voluntary. There is no penalty for refusal to participate, and you are free to withdraw your consent and participation in this project at any time.

Confidentiality: The records of this study will be kept private. Any written results will discuss group findings and will not include information that will identify you. Research records will be stored on a password protected computer in a locked office and only researchers and individuals responsible for research oversight will have access to the records. Email addresses of all participants will be kept until the prizes are awarded.

Contacts: The researchers conducting this study are Lincoln Brown, Ph.D. Candidate in Entrepreneurship at Oklahoma State University and Dr. Robert Baron, Professor at Oklahoma State University. If you have any questions or concerns, please feel free to contact Lincoln Brown at lincoln.m.brown@okstate.edu. For questions about your rights as a human subject, contact the OSU Institutional Review Board (IRB) at 405- 744-3377 or email irb@okstate.edu.

If you choose to participate:

By continuing, you are indicating that you freely and voluntarily agree to participate in this study and you also acknowledge that you are at least 18 years of age.

It is recommended that you print a copy of this consent page for your records before you begin the study by clicking below

Approved:
Protocol #: BU-18-59

Oklahoma State University Institutional Review Board

Application Number:	BU-18-59
Proposal Title:	Opportunity Creation: The effects of affective events and information processing on opportunity creation idea quantity and quality
Principal Investigator:	Lincoln Brown
Co-Investigator(s):	
Faculty Adviser:	Matt w Rutherford
Project Coordinator:	
Research Assistant(s):	

Status Recommended by Reviewer(s): Approved

Study Review Level:	Exempt
Modification Approval Date:	01/30/2019

The modification of the IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46. The original expiration date of the protocol has not changed.

Modifications Approved:
Modifications Approved: recruit participants via a paid panel/Qualtrics.

The final versions of any recruitment, consent and assent documents bearing the IRB approval stamp are available for download from IRBManager. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved.
2. Submit a status report to the IRB when requested
3. Promptly report to the IRB any harm experienced by a participant that is both unanticipated and related per IRB policy.
4. Maintain accurate and complete study records for evaluation by the OSU IRB and, if applicable, inspection by regulatory agencies and/or the study sponsor.
5. Notify the IRB office when your research project is complete or when you are no longer affiliated with Oklahoma State University.

Sincerely,

Oklahoma State University IRB
223 Scott Hall, Stillwater, OK 74078
Website: https://irb.okstate.edu/
Ph: 405-744-3377 | Fax: 405-744-4335| irb@okstate.edu

VITA

Lincoln Mathew Brown

Candidate for the Degree of

Doctor of Philosophy

Thesis: OPPORTUNITY CREATION: THE EFFECTS OF AFFECTIVE EVENTS AND INFORMATION PROCESSING (SYSTEMATIC, HEURISTIC) ON OPPORTUNITY CREATION IDEA QUANTITY AND QUALITY

Major Field: BUSINESS ADMINISTRATION

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Business Administration with an option in Entrepreneurship at Oklahoma State University, Stillwater, Oklahoma in August, 2019.

Completed the requirements for the Bachelor of Science in Business Administration at Southern Nazarene University, Tulsa, Oklahoma, 2013.

Peer Reviewed Publications:

Brown, L. M., Packard, M. D., Bylund, P. L. (2018) Judgement fast and slow: Toward a judgment view of entrepreneurs' impulsivity. *Journal of Business Venturing Insights.*

Brown, L. M. (2016). The family effect in establishing a family business. *NCFR Report: Family Focus on Entrepreneurship and Family Business,* FF70, F7-F8