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ENTREPRENEURIAL PROCESS ORIENTATION: A “CHOICE” OF THREE
THEORIES

by

David Frank Jorgensen

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

Major: Business Administration

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Dedication Page

To my father, Russell Jorgensen, whose admonition to always search for truth has continually shaped my life; to my mother, Pamela Jorgensen, whose unwavering example has provided sure footing and comfort in times both light and dark; to my advisor, Frances Fabian, whose constant support has kept me moving forward throughout this difficult process; to my first academic mentor, Doug Miller, who showed me that to teach others begets some of the greatest joy any human can ever know; to my second academic mentor, Paul Dishman, whose unyielding diligence has opened so many doors; to my committee member, Joshua Coyne, who patiently guided me through so much of the analysis of this topic when at times it was not easy; to my wife, Katherine Jorgensen, without whose support, kindness, hard work, patience, and understanding this journey would not have been possible; and to my children, Rose, Russell, and Rowan Jorgensen, who have provided the ultimate motivation to reach the finish line and meaningful diversion when breaks were needed; thank you!

Abstract

While entrepreneurship has gained in prevalence among universities in recent years (Singer, 2015), many individuals stay out of the arena due to beliefs of their match to necessary entrepreneurial behaviors, as well as lack of outside acceptance as an entrepreneur. The popular view on which behaviors are required for success in entrepreneurship, however, may be incomplete and even misleading. To address this concern, I introduced the new construct of *entrepreneurial process orientation* (EPO) and studied how this construct, while it possesses the potential to encompass several facets of personality, could be initially explored using variables from the Panel Study of Entrepreneurial Dynamics. Evidence supported that by ensuring proper fit between EPO and founding behaviors undertaken in venture formation, a firm could increase their odds of earning profit within an extraordinarily rare 12-month timeframe.

Keywords: Entrepreneurs, entrepreneurial process, opportunities, personality, and entrepreneurial process orientation.

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Chapter 1: Problem Statement and Introduction

Entrepreneurship has long been valued within numerous societies as a driver of both economic growth and technological advancement. Despite its importance, however, the study of entrepreneurship has been limited by a primary focus on one approach to venture formation—the *discovery* perspective of entrepreneurial opportunities where opportunities are assumed to exist and in need of discovery by the entrepreneur. While a *creation* perspective has been rising in the research literature—where the entrepreneur “creates” an otherwise nonexistent opportunity for their startup—little empirical evidence has examined the differing processes that are associated with the creation perspective (Smith, Moghaddam, & Lanivich, 2018). Additionally, these two theoretical perspectives fall short of the entire spectrum of processes that entrepreneurs pursue with their startups. In particular, the *effectuation* perspective (Sarasvathy, 2001) has important implications for entrepreneurs who follow neither a discovery nor a creation process. Instead, effectual entrepreneurs assess their existing means and craft from those means an end product or service, relying on social commitments and setting an affordable loss threshold rather than chasing expected return (discovery), or pure invention (creation).

By focusing on just one of these perspectives, as is commonly adopted by university and nonprofit entrepreneurial education programs, several could-be entrepreneurs may feel excluded if they do not fit the “discovery mold” currently conceptualized as central to successful entrepreneurship. In such a case, these would-be entrepreneurs are overwhelmed in attempting to master the set of skills associated with a discovery-based entrepreneurial process, and may prematurely cease chasing their entrepreneurial vision. Alternatively, while acknowledging that discovery has proven a valid and useful theoretical tool within entrepreneurship, it may be time to promote other processes for educating and designing entrepreneurship journeys.

Research has in fact suggested that entrepreneurs may not simply differ from non-entrepreneurs, but that they differ behaviorally within their own group (Cardon, Wincent, Singh, & Drnovsek, 2009; Fauchart & Gruber, 2011; Mathias & Williams, 2017). These other entrepreneurs who may have traditionally felt excluded from acceptance within the conventional entrepreneurial type may have a great degree of value to add to the world, and the research here encourages widening the boundaries of qualifications to be called “an entrepreneur” to promote more inclusion by encouraging creative and effectuating *entrepreneur types* to apply their own unique skillsets to venture formation.

In particular, the creation and effectuation perspectives offer additional useful theoretical tools worthy of further study and, potentially, similar attention in business school curriculums and corporate training programs so as to increase their normalcy and general acceptance as entrepreneurial processes. To date, though, there appear to be very few examples of how to match the entrepreneur to the entrepreneurial process, specifically in regard to their interests and their skill sets. This may in turn lead to entrepreneurs unnecessarily pursuing a narrow focus of activities towards which they have little or no natural proclivity, i.e. forcing an entrepreneur into the mold of discovery entrepreneurship.

By developing a new construct, *entrepreneurial process orientation* (EPO), I examine how fit between an entrepreneur’s natural orientation, and the entrepreneurial process the entrepreneur emphasizes in building their startup, influences outcomes such as firm performance—measured by whether a firm had attained profit at 12 months—and firm survival—measured by whether a firm was still operating at the common failure milestone of 60 months. EPO represents a typology rather than a taxonomy, and in particular contains three types: EPO-Discovery (EPO-D), EPO-Creation (EPO-C), and EPO-Effectuation (EPO-E). Each

type is related to the entrepreneurial process, or founding behaviors, associated with each theoretical perspective from which they take their name.

In developing EPO and its influence on two measures of firm performance, I examine the following research questions:

Research Question 1: How can discovery, creation, and effectuation be framed as three separate EPOs?

Research Question 2: Does fit between EPO and founding behavior improve firm financial performance and firm survival?

Prior to expounding upon EPO in Chapter 3, I provide in Chapter 2 an overview of prior relevant entrepreneurship literature. Specifically, Chapter 2 explores the definitional problem that exists in entrepreneurship literature; examines the binary conceptualization of entrepreneurs (i.e., an individual is an entrepreneur or they are not); next, explores entrepreneurship, turns to a brief overview of entrepreneurial orientation and the subsequent individual entrepreneurial orientation construct; moves on to a view of differences among entrepreneurs by focusing on the three perspectives and associated processes of discovery, creation, and effectuation; and finally, finishes with a review of literature on person-environment fit. The PE fit literature anchors our assertion that matching entrepreneurial process orientations with their associated behaviors will improve performance.

Chapter 3 builds the new construct of EPO, extending prior binary views of the entrepreneur by outlining how the optimal entrepreneur process—founding behaviors— should differ across perspectives. The section further discusses the role that fit between EPO and founding behaviors plays in entrepreneurship functioning, and justifies why fit between EPO and founding behavior should increase the likelihood of a firm attaining profit at 12 months and why

it should increase the likelihood of firm survival at 60 months. These relationships form the basis of the hypotheses tested here.

Chapter 4 reports the methods and analyses used within this study, including a brief overview of the database used: the Panel Study of Entrepreneurial Dynamics. Additionally, variables used in the study are justified. Analyses included both cluster analysis and binary logistic regression. Chapter 4 ends with a discussion of limitations.

Chapter 5 contains a discussion of the results of the study and closes with a discussion of implications for theory, practice, and education, and then provides recommendations for future research.

Chapter 2: Theoretical Background

Entrepreneurs

Entrepreneurs and their requisite characteristics have long been a subject of interest, in particular as entrepreneurs play a central role in economic progress, as described by Schumpeter (1934) as “agents of creative destruction.” McMullen & Shepherd (2006) stated that entrepreneurship requires action. Lumpkin and Dess (1996) wrote about entering new markets, while Gartner (1985) discussed the creation of new markets entirely. Several other definitions have formed as a result of scholarly efforts at defining what it means to be an entrepreneur and to be entrepreneurial.

Yet, the ability to characterize who these actors are has remained elusive; one reason being that there is little consensus on a single definition (Cole 1969, p. 17). Gartner (1988) in fact provided 24 definitions of entrepreneurship. These definitions can be found in Table 1, recreated from Gartner (1988, pp. 50-56).

Table 1. Historical Definitions of Entrepreneurs

| Author(s) | Year | Definition |
|---------------------|-------------|---|
| Brockhaus | 1980 | An entrepreneur is defined as a major owner and manager of a business venture not employed elsewhere (p. 510) |
| Cole | 1959 | The purposeful activity (including and integrated sequence of decision) of an individual or group of individuals, undertaken to initiate, maintain, or aggrandize a profit-oriented business unit for the production or distribution of economic goods and services. (p.7) |
| Collins & Moore | 1970 | We distinguish between organization builders who create new and independent firms and those who perform entrepreneurial functions within already established organizations. Perhaps we are, after all, thinking of the entrepreneur in the way Schumpeter viewed him: 'everyone is an entrepreneur only when he actually carries out new combinations,' and loses that character as soon as he has built up his business. (p. 10) |
| Cooper & Dunkelberg | 1981 | This paper reports upon what we believe to be the largest and most varied sample of entrepreneurs studied to date. The findings are from a survey of 1805 owner-managers. |
| Davids & Bunting | 1963 | Founders of new businesses. (p. 3) |

Table 1. Historical Definitions of Entrepreneurs (Continued)

| | | |
|------------------|------|---|
| Draheim | 1972 | Entrepreneurship--the act of founding a new company where none existed before. Entrepreneur is the person and entrepreneurs are the persons who are new company founders. The term is also used to indicate that the founders have some significant ownership stake in the business (they are not only employees) and that their intention is for the business to grow and prosper beyond the self-employment stage. (p.1) |
| Durand | 1975 | None given |
| Ely & Hess | 1937 | The person or group of persons who assume the task and responsibility of combining the factors of production into a business organization and keeping this organization in operation...he commands the industrial forces, and upon him rests the responsibility for their success or failure. (p. 113) |
| Hartmann | 1959 | A distinction between manager and entrepreneur in terms of their relationship to formal authority in the industrial organization...The entrepreneur may justify his formal authority independently or he may describe it as delegated from others, notably from the stockholders. But within the organization he alone is the source of all formal authority. Management is defined residually as "not being the source of all authority." The borderline between the entrepreneur and the manager is thus relatively precise. (p. 450-451) |
| Hornaday & Aboud | 1971 | The "successful entrepreneur" was defined as a man or woman started a business where there was none before, who had at least 8 employees and who had been established for at least 5 years. |

Table 1. Historical Definitions of Entrepreneurs (Continued)

| | | |
|-----------------------|------|--|
| Hornaday & Bunker | 1970 | The "successful" entrepreneur was an individual who had started a business, building it where no previous business had been functioning, and continuing for a period of at least 5 years to the present profit-making structure...with 15 or more employees. (p. 50) |
| Howell | 1972 | Entrepreneurship--the act of founding a new company where none existed before. Entrepreneur is the person and entrepreneurs are the persons who are new company founders. The term is also used to indicate that the founders have some significant ownership stake in the business (they are not only employees) and that their intention is for the business to grow and prosper beyond the self-employment stage. (p.1) |
| Hull, Bosley, & Udell | 1980 | A person who organizes and manages a business undertaking assuming the risk for the sake of profit. For present purposes, this standard definition will be extended to include those individuals who purchase or inherit an existing business with the intention of (and effort toward) expanding it. (p. 11) |
| Lachman | 1980 | The entrepreneur is perceived as a person who uses a new combination of production factors to produce the first brand in an industry. |
| Lavington | 1922 | In modern times the entrepreneur assumes many forms. He may be a private business man, a partnership, a joint stock company, a cooperative society, a municipality or similar body. (p. 19)\ |

Table 1. Historical Definitions of Entrepreneurs (Continued)

| | | |
|-------------|------|--|
| Leibenstein | 1968 | By routine entrepreneurship we mean the activities involved in coordinating and carrying on a well-established, going concern in which the parts of the production function in use (an likely alternatives to current use) are well known and which operates in well established and clearly defined markets. By N-entrepreneurship we mean the activities necessary to create or carry on an enterprise where not all the markets are well established or clearly defined and/or in which the relevant parts of the production function are not completely known. (p. 73) |
| Liles | 1974 | We have examined the entrepreneur who is involved in substantial ventures and have considered what we found in light of traditional thinking that he is a special type of individual-somehow an unusual and uncommon man-a man apart. It probably is true that very successful entrepreneurs become men apart. But, at the beginning, when they make the decision to start an entrepreneurial career, they are in most respects very much like many other ambitious, striving individuals. (p.14) |
| Litzinger | 1965 | The distinction is drawn between "entrepreneurs" who are goal and action oriented as contrasted to "managers" who carry out policies and procedures in achieving the goals...Owners of mom and pop motels appear as the entrepreneurial type who have invested their own capital and operate a business (p. 268) |

Table 1. Historical Definitions of Entrepreneurs (Continued)

| | | |
|--------------------|------|--|
| McClelland | 1961 | Someone who exercises some control over the means of production and produces more than he can consume in order to sell (or exchange) it for individual (or household) income...In practice such people turned out to be traders, independent artisans and firm operators. (p. 65) |
| Mescon & Montanari | 1981 | Entrepreneurs are, by definition, founder of new businesses. |
| Palmer | 1971 | The entrepreneurial function involves primarily risk measurement and risk taking within a business organization. Furthermore, the successful entrepreneur is that individual who can correctly interpret the risk situation and determine policies which will minimize the risk involved...Thus, the individual who can correctly measure the risk situation, but is unable to minimize the risk, would not be defined as an entrepreneur. (p. 38) |
| Say | 1816 | The agent who unites all means of production and who finds in the value of the products...the re-establishment of the entire capital he employs, and the value of the wages, the interest and the rent which he pays, as well as the profits belonging to himself. (p. 28-29) |

Table 1. Historical Definitions of Entrepreneurs (Continued)

| | | |
|-------------------|------|---|
| Schumpeter | 1934 | Entrepreneurship, as defined, essentially, consists in doing things that are not generally done in the ordinary course of business routine, it is essentially a phenomenon that comes under the wider aspect of leadership. (p. 254) |
| Stauss | 1944 | This paper is an argument to advance the proposition that the firm is the entrepreneur. |
| Wainer & Rubin | 1969 | The entrepreneur in McClelland's scheme is "the man who organizes the firm (the business unit) and/or increases its productive capacity." (p. 178) |

Varying definitions defining a field in its early days is not necessarily new or unique, nor even detrimental, yet entrepreneurship may benefit from greater consensus at this point in time. Specifically, past definitions have focused primarily on discovery entrepreneurship, thereby limiting the field unnecessarily. Here I consider the fact that how an entrepreneur pursues and establishes that entry, i.e. the entrepreneurial process, can be categorized into different patterns, and these patterns become important in identifying meaningful differences among entrepreneurs.

Traits and Behavior

A wide body of research has examined the individual characteristics of entrepreneurs, though for several decades personality has been a contested central characteristic with high profile researchers asserting that personality was not useful in understanding entrepreneurship (Gartner, 1988). In recent years, however, there has been a resurgence of inquiry into how personality does, in fact, provide value in the study of the field (Stewart & Roth, 2001; Zhao, Seibert, & Lumpkin, 2006; Rauch & Frese, 2007; Brandstätter, 2011). Similarly, Carland, Hoy, & Carland (1988), argued that the question of “who is an entrepreneur?” is indeed an important question in entrepreneurship inquiry, and that we as authors need to “define our terms as we conduct and report on our research,” (p. 33).

Gartner clarified that a definition of entrepreneurship can be reached by asking why some individuals are entrepreneurial while others are not (1989). Whether looking at why some individuals are entrepreneurs while others are not, or looking at the personality of the individual entrepreneur, both approaches to clarifying entrepreneurship rest on both traits and characteristics (Gartner, 1988 and 1989), and behaviors (Carland *et al.*, 1988).

The trait approach emphasizes that entrepreneurs differ ex ante in their individual characteristics, which make them more prone to take on the difficult behaviors associated with entrepreneurship. This view is especially interesting in differentiating the discovery, creation, and effectuation perspectives, as they differ both in the expected necessary traits, but also in the dynamics of when these traits become important (Sarasvathy, 2003; Alvarez & Barney, 2007; Fisher, 2012).

The behavioral approach more strongly considers the entrepreneurial process in identifying entrepreneurs, e.g., examining the creation of new markets (Gartner, 1988), or less radically, the entry into new markets (Lumpkin & Dess, 1996). Accordingly, the characterization of what is happening in entrepreneurship will also strongly impact the implications for identifying who is an entrepreneur. For instance, most entrepreneurship scholars recognize the definitional difference between self-employed firm owners in existing business niches and entrepreneurs who change the existing niches as part of their business venture. (Gartner, 1988 and Carland, Hoy, Boulton, & Carland, 2007). Similarly, the more nuanced differences among discovery (i.e., researching new needs/capabilities in existing markets), creation (i.e., creating de novo new markets), and effectuation (i.e., rearranging existing resource configurations), all affect who is identified as a “true” entrepreneur.

Supporting this notion, Alvarez and Barney (2007) reported that the characteristics of an entrepreneur vary based on what theoretical perspective of entrepreneurship one is using. For instance, entrepreneurs under the discovery perspective differ in some important ways from non-entrepreneurs ex ante, while in the creation perspective entrepreneurs may or may not differ from entrepreneurs ex ante, though differences may emerge ex post. Most can agree, however, that entrepreneurship as a field is different than other areas of business in its requirements.

For example, time is a finite resource regardless of field, yet for entrepreneurs it is notably scarce due to the unique constraints they face that more established businesses have overcome. This scarcity of time exists as a steep barrier, preventing some individuals from entry and others from performing well. In the entrepreneurial sphere, where long workweeks are common (Boyd & Webb, 1982; Jamal & Badawi, 1995; Jamal, 2007), pay is low if not entirely non-existent in the beginning (Neff, Wissinger, & Zukin, 2005), and failure is pervasive (Amit, Muller, & Cockburn, 1995; McGrath, 1999; Azoulay & Shane, 2001). In fact, failure estimates regularly range at around 50% (cf., Dunne *et al.*, 1988; Monk, 2000; Van Praag, 2003; Knaup, 2005; Knaup & Piazza, 2007; Eurostat, 2013). In entrepreneurial ventures, only the very determined, skilled, and lucky survive.

Moreover, entrepreneurship is often a lonely enterprise in terms of co-workers due to the lack of capital with which to pay others, let alone oneself. It is for this reason that providing wider acceptance for processes other than those related to the discovery perspective is so important. In this lonely, risk-filled endeavor, feeling a sense of belonging and camaraderie can be beneficial. Also, it is important to give these “other” entrepreneurs the appropriate tools they need to attain success by pursuing processes that better fit their proclivities.

Making the endeavor lonelier is the lack of fit between the entrepreneur and the process they might naturally follow were they only aware that alternate options exist. Pigeonholed into the discovery perspective, many entrepreneurs move forward with tools that do not grant them the internal satisfaction of fitting “just right.” However, early conceptualizations of entrepreneurs have treated them as a group distinct only from non-entrepreneurs.

Recognizing the value of entrepreneurial endeavors and intrapreneurship, constructs such as entrepreneurial orientation first arose to explain firm behavior (Lumpkin & Dess, 1996; Covin & Slevin, 1991). From this entrepreneurial orientation (EO) arose the individual entrepreneurial orientation (IEO) (Kollmann, Christofor, & Kuckertz, 2007), providing an avenue to apply the important concepts of EO at the individual rather than firm level. A brief overview of the IEO follows.

Individual Entrepreneurial Orientation

Researchers have long been interested in understanding what drives certain people to become entrepreneurs, and whether such individuals could be identified *ex ante*. Robinson, Stimpson, Huefner, & Hunt (1991) drew on social psychology to create the “entrepreneurial attitude orientation” that combined behavior, attitude, and emotion to differentiate entrepreneurs from non-entrepreneurs. While a successful predictor for identifying entrepreneurs, it provides very little insight on the potential for making a more detailed match between the entrepreneur and the ensuing processes required for entrepreneurship.

Entrepreneurial orientation, on the other hand, is a construct that arose at the firm level and was specifically designed to be matched to patterns of strategies, in particular to new market entry (Lumpkin & Dess, 1996; Covin & Slevin, 1991; Wiklund & Shepherd, 2003; Gupta & Gupta, 2015). The EO construct comprises five factors: autonomy, innovativeness, proactiveness, risk-taking, and competitive aggressiveness. Kollmann, Christofor, and Kuckertz (2007) elaborated a logic for expanding the construct to the individual level; noting that individuals, and not just firms, possess specific qualities which set them apart from others as entrepreneurial. Their original description was concerned with why levels of interest in entrepreneurship tended to vary by country, and thus they sought out cultural antecedents that

would predict the five analogs in individual entrepreneurial orientation (IEO) paralleling the firm-level factors (Lumpkin & Dess, 1996): autonomy, innovativeness, proactiveness, risk-taking, and competitive aggressiveness.

Bolton and Lane (2012) in turn developed a popular scale for the study and measurement of IEO. Their empirics for the scale development found three of the five factors were valid and reliable: innovativeness, proactiveness, and risk-taking. Drawing from their source (Rauch, Wiklund, Lumpkin, & Frese, 2009: 763), the factors can be described as follows:

Innovativeness

Innovativeness is defined as “the predisposition to engage in creativity and experimentation through the introduction of new products/services as well as technological leadership via [research and development] in new processes.”

Proactiveness

Proactiveness is defined as “an opportunity-seeking, forward-looking perspective characterized by the introduction of new products and services ahead of the competition and acting in anticipation of future demand.”

Risk-taking

Risk-taking “involves taking bold actions by venturing in to the unknown, borrowing heavily and/or committing significant resources to ventures in uncertain environments.”

While an important tool in further defining entrepreneurial traits, the IEO moves towards distinguishing entrepreneurs from non-entrepreneurs rather than differentiating one type of entrepreneur from another.

However, entrepreneurs not only differ from non-entrepreneurs, but also from one another in patterned ways (Cardon *et al.*, 2009; Fauchart & Gruber, 2011; Mathias & Williams,

2017). In this research, I drew on the individual factors of the IEO to assist in profiling entrepreneurs in a large archival sample, and along with prior literature (stemming from the three theoretical perspectives of discovery, creation, and effectuation) group those entrepreneurs into theorized *entrepreneurial process orientations* tailored towards their unique attributes as discovery, creation, and effectuation entrepreneurs.

Entrepreneurship

As seen in Table 1 and the discussion above, “entrepreneur” can describe a wide number of individuals, some of whom, it is argued here, may have experienced barriers to their success based on the lack of encouragement towards anything but the pursuit of discovery entrepreneurial processes derived from the discovery perspective. Other perspectives, however, had added value, such as with companies like Uber, Lyft, Air BnB, and in revolutions such as augmented reality.

Thus, by widening the definition of entrepreneurship and differentiating across different processes, venture capital and education might better work with the population of entrepreneurs to introduce other game-changing products and services. Thus, the definition of the entrepreneur, with a special emphasis on the related entrepreneurial process, will benefit by a more broad definition. Given the notably difficult endeavor of trying to be an entrepreneur, concentration on one path and type of entrepreneurship surely – inadvertently – decreases the number of individuals willing to undertake entrepreneurial ventures.

For that reason, I echo Lanivich (2011) in stating that in perhaps the broadest, most inarguable sense, entrepreneurs are catalysts of venture creation. Beyond that, entrepreneurs should be exposed to how they can create their venture in a way that best suits their skills and

proclivities, assisted by scholarship that trains more tailored approaches that can inform a wider audience of not only discovery, but effectuation and creation processes.

Opportunities and Conflict

An oft-heated debate continues to animate the entrepreneurship literature (Sarasvathy, Dew, Velamuri, & Venkataraman, 2003; Barney & Alvarez, 2007) regards whether opportunities exist independent of entrepreneurs and are thus waiting to be discovered by them, or only exist by virtue of entrepreneurs creating them. Accordingly, the creation perspective, wherein opportunities are entirely dependent upon the entrepreneur forming them, has been more recently developed as an alternative to the well-established discovery perspective, wherein opportunities exist independent of the entrepreneur who must find ways to exploit them (Sarasvathy, 2003; Alvarez & Barney, 2007; Edelman & Yli-Renko, 2010).

Opportunities themselves, however, have been a contested topic within the literature, and quite hotly at that. Foss & Klein (2018), in a symposium entitled “*Entrepreneurial Opportunities: Who Needs Them?*” asserted that while the construct of opportunity is more than a decade old, exploration within the topic has done little to add to our understanding of entrepreneurship. They further state that uncertainty is an inherent part of entrepreneurship, yet claim that the idea is absent from opportunity-based entrepreneurship. Alvarez and Barney (2007), however, clearly addressed uncertainty as being present in the treatment of opportunities in the creation perspective, as did Sarasvathy (2001, 2003) and Fisher (2012) for both discovery and creation. Other scholars, e.g. Davidsson (2015) and Davidsson & Von Briel (2018) have discussed the many inconsistencies in the definition and research of opportunities.

In response, Alvarez and Barney (2019) noted that while there is truth in Davidsson’s assertions, the practice of questioning a construct is not at all uncommon during the early years

of its existence. Indeed, entrepreneurship as a field of inquiry is still relatively young, and thus many of its constructs face similar criticism. Furthermore, while Alvarez and Barney (2019) assert that while both Foss & Klein (2018), Davidsson (2015), and Davidsson & Von Briel (2018) both use the term *opportunity* sparingly, they in fact rely on the concept heavily and that their argument to cease using opportunities within entrepreneurship simply “devolves into semantics” (Alvarez and Barney, 2019, p. 4). I align myself with Alvarez and Barney in this line of thought, but believe that the research presented in this dissertation can contribute to providing greater construct clarity. In particular, I argue specifically for greater delineation between a creation and an effectuation perspective, deviating significantly from past treatments of effectuation as a subset of creation.

In the next section, the three perspectives are distinguished. One important distinction is in the treatment of opportunities, with the effectuation perspective differentiated by a central focus on the entrepreneur rather than the opportunity. In effectuation, a potential entrepreneur examines their existing means, and crafts from them an end that may or may not constitute an opportunity. So in this sense the effectuation perspective pivots from the concept of the opportunity, viewing a focus on opportunities as perhaps unnecessary altogether. Instead, effectuators focus on controlling resources through key partnerships. From such a vantage point, to the extent an entrepreneur can shape and control their environment, they have a much more limited need to try and predict the future through extensive opportunity assessment.

Three Theoretical Perspectives of Entrepreneurship

A question central to entrepreneurship rests on the origin of new ventures; notably, whether opportunities for venture formation are discovered or created (Alvarez & Barney, 2007; Neill, Metcalf, & York, 2017). The ensuing study of opportunity exploitation on which this debate pivots has been the subject of significant attention (Alvarez, Barney, & Anderson, 2013).

Yet, researchers have noted further contrasts in entrepreneurial processes that indicate greater differentiation can be promoted, which I then categorize as discovery, creation, and effectuation perspectives. Alvarez and Barney (2007) provided a compelling comparison of the discovery and creation perspectives, distinguishing the two in depth. Further, in response to the causal assumptions of the discovery perspective, Sarasvathy (2001) introduced the effectuation perspective as an additional exemplar of the entrepreneurial process. Key to understanding the distinction among these perspectives lies in the answer to the central quandary in entrepreneurship: “How do ventures come to exist?”

This line of inquiry and its conflicting approaches, or entrepreneurial processes, are likely to generate fruitful debate for years to come (Alvarez, *et al.*, 2013). This dissertation research advances the idea that an entrepreneur may undertake to begin a venture in three very different ways, elaborated here as the perspectives of discovery, creation, and effectuation, which cover a broad spectrum of potential approaches, and thus encompass different entrepreneurial processes. This view serves as the foundational assumption for recognizing that individuals will differ in respect to these processes, holding more or less strong orientations toward one process versus others.

The Discovery Perspective

The discovery perspective represents one of the most widely-studied domains of entrepreneurship (Venkataraman, 1997; Gaglio & Katz, 2001; Shane, 2003; Alvarez *et al.*, 2013), and due to its dominant implementation and assumptions on the nature of entrepreneurship, may have dissuaded many would-be entrepreneurs from further action via other entrepreneurial processes. Indeed, the entrepreneurship field has focused almost entirely on this Kirznerian discovery and Schumpeterian exploitation of existing opportunities, limiting the field as it were to one narrow (and arguably incomplete) view of entrepreneurship (Chiles, Bluedorn, and Gupta, 2007). Schumpeter has thus been identified as being “widely regarded as the first modern scholar to contribute significantly to entrepreneurship theory” (Chiles *et al.*, 2007, p. 470), and did not formally recognize any approach to entrepreneurship other than one based on the exploitation of opportunities, the lynchpin of the discovery perspective.

Discovery entrepreneurship treats an opportunity as pre-existing in the environment, essentially waiting to be found. Accordingly, these opportunities exist independent of entrepreneurs (Alvarez & Barney, 2007) and will continue existing until they have been found, or until the market moves on, leaving them undiscovered. Generally, this assumption has guided research more widely than either creation or effectuation views, in that the existence of opportunities irrespective of entrepreneurs has been taken as given (Alvarez *et al.*, 2013).

Discovery entrepreneurship also treats entrepreneurs as a distinct group of individuals who differ from non-entrepreneurs. Moreover, these differences are salient *ex ante* when operating in an environment that is risky in nature (Alvarez & Barney, 2007).

Importantly, as part of the process of planning that the discovery perspective follows, discovery entrepreneurs operate under expectations of attaining specific returns on their

investment. Using the discovery perspective, entrepreneurs conduct various analyses that together present a list of alternatives, all with expected returns. It is the duty of the entrepreneur following the discovery perspective to then choose among those alternatives, typically choosing the alternative with the highest possible return and/or the highest chance of attaining a competitive advantage. In sum, the discovery approach, as a causal method, requires careful planning (Randerson, Degeorge, & Fayolle, 2016) and opportunity assessment (Sarasvathy, 2001). Accordingly, of the three factors regularly attributed to the IEO scale, the proactiveness factor, with its opportunity-seeking, forward-looking emphasis, lends itself most appropriately to profiling entrepreneurs following the discovery perspective.

The Creation Perspective

The creation perspective has thick roots in Lachmannian entrepreneurship, which sought to move beyond the work of Schumpeter and Kirzner regarding discovery and exploitation to recognize the role of creation within entrepreneurship (Chiles *et al.*, 2007). Interestingly, Lachmann asserted that “innovators and creative geniuses cannot be reared in schools,” (Lachmann, 1977, p. 109). While many researchers believe creation can, in fact, be taught (Robinson & Stubberud, 2014), the statement sends another clear message that for some time, creation has stood apart from the heavily-taught discovery perspective.

Creation entrepreneurs are thought to operate differently than discovery entrepreneurs, and are best idealized in the cultural mythos around pioneering genius. World-altering innovative inventions by the Wright brothers, Nikola Tesla, or Thomas Edison epitomize the archetypes of creation entrepreneurship. Creation entrepreneurs differ from both discovery and effectual entrepreneurs in that they create *ex nihilo*, i.e., they create from nothing (Lachmann, 1986). In recent eras, the disruptive innovations from such creation entrepreneurs less represent the lone

engineer and more the rearrangement of long-standing industries with technological advances, such as witnessed in the strategies from companies like Netflix, Air BnB, and Uber (Fillis, 2000; Kirzner, 2009; Mathias & Williams, 2017). Creation entrepreneurs thus exude innovativeness through creativity and experimentation, as well as through technological leadership (Rauch, Wiklund, Lumpkin, & Frese, 2009: 763).

As compared to their discovery counterparts, creation entrepreneurs operate in environments of uncertainty rather than risk (Sarasvathy, Dew, Velamuri, & Venkataraman, 2003; Alvarez & Barney, 2007). When a creation entrepreneur creates an opportunity, there is seldom assurance that demand will follow supply. The initial introduction of the Segway for instance, strongly illustrates the possibility of colossal failure despite considerable hype and marketing support (Clark, Atkinson-Palombo, & Garrick, 2019; Rivlin, 2003).

The creation perspective assumes that opportunities do not exist apart from the actions of entrepreneurs (Alvarez & Barney, 2007). Without existing markets to guide investors and customers alike, the best a creation entrepreneur can do is assess past successful innovations such as the explosion of the Internet (Alvarez & Barney, 2007). Therefore, skills of marketing analysis, internal analysis, innovation, creativity, sales, and bootstrapping would benefit the education of creation entrepreneurs in later stages as they seek to realize an idea, obtain necessary financing, and sell the idea to customers. Furthermore, assuring proper fit between creation entrepreneurs and the skills needed for creation should enhance the quality and frequency of these innovative, world-altering offerings.

Creation entrepreneurs face several unique challenges, among them a lack of legitimacy, the lack of an existing market, skeptical sources of funding, and a general lack of understanding by key stakeholders (Aldrich & Fiol, 1994 and Clark *et al.*, 2019). Although newer, less studied,

and taught with less frequency in our business schools vis a vis the discovery perspective, the creation perspective is increasingly recognized as a central process for exploiting technological progress. Indeed, educational attainment has been shown to be a significant predictor of increased venture performance, albeit more so for discovery entrepreneurs than creation, where “street smarts” are more important (Hmieleski, Carr, & Baron, 2015).

The creation perspective utilizes an exploratory approach that may not even begin with a business venture formation in mind. Creation entrepreneurs create because they enjoy creating, and it is fundamentally who they are as individuals. However, creative individuals who do not engage in entrepreneurial ventures are also fundamentally creative. Thus, it is difficult to differentiate entrepreneur from non-entrepreneur until engagement with the entrepreneurial process. Those who do choose the entrepreneurial path need to be innovative and adept at selling ideas that may not have an existing market or any interest. Once they have created their opportunity, they need to be proficient at understanding the developing needs of their consumers and their capabilities in meeting those needs. They need to be open. Thus, tools such as environmental analysis and business plans may not only be useless to a creation entrepreneur, but may in fact impede their process given the high degree of uncertainty (Alvarez and Barney, 2007).

The addition of a creation perspective of entrepreneurship recognizes an important gap regarding conceptualizations of both opportunities and individuals. Not every entrepreneur has exploited an existing opportunity; rather some have instead formed their own opportunity and been lucky enough to have a market form around that opportunity. The addition of the creation perspective (Alvarez and Barney, 2007) thus provides the entrepreneurship literature another lens through which to examine business formation. In particular, the creation perspective paves the

way towards more effectively examining market disruptors such as Netflix, or new business models such as Facebook. In our relatively young field of inquiry, this has provided much-needed latitude to define entrepreneurship and, importantly, the entrepreneur. The innovativeness factor of the IEO scale, with its creation and experimentation, lends itself most appropriately to profiling entrepreneurs inclined to perform best using a creation entrepreneurial process.

A New Perspective: Effectuation

While the perspectives of discovery and creation have provided key foundations for the inquiry of entrepreneurship, the complementary but differentiated insights from effectuation can further expand our approach to entrepreneurship processes and orientation. Thus, the theory of effectuation (Sarasvathy, 2001) and to some extent the related “entrepreneurial bricolage” (Baker and Nelson, 2005) add further theoretical lenses through which to view entrepreneurship and the associated treatment of opportunity.

Effectual entrepreneurs stand in contrast to both discovery and creation entrepreneurs in the behaviors they undertake and the attitudes they possess. Where discovery entrepreneurs plan, and creation entrepreneurs innovate, effectual entrepreneurs envision; they begin by exploring their existing means and potential leverageable relationships, operating under the idea of “failing fast” and minimizing the level of risk (Sarasvathy, 2001; Sarasvathy, 2003; Fisher, 2012).

Effectuation represents a fairly new perspective in entrepreneurship as a result of the body of work by Sarasvathy (2001). It challenges the approaches of the discovery perspective most directly (referred to as the causation perspective, Sarasvathy, 2001), in particular by questioning the emphasis on discovery as the sole approach entrepreneurs follow in venture formation. The discovery perspective assumes a desired effect as given, and thus focuses on achieving that effect given a choice among various existing means (Sarasvathy, 2001).

Effectuation, on the contrary, assumes a set of means as given (Sarasvathy, 2001), and then focuses on what effects can be reached using those means.

As a result, effectual entrepreneurs begin with their means and set a threshold for affordable loss, in contraindication to the discovery perspective's emphasis on the analysis of expected returns (Sarasvathy, 2001; Fisher, 2012). Accordingly, effectual entrepreneurs can thus fail fast (Chandler *et al.*, 2011; Fisher, 2012) and move from one opportunity to another, attempting to generate opportunities along the way (Sarasvathy, 2003). Similar to the related entrepreneurial literature on the process of entrepreneurial bricolage (Baker & Nelson, 2005; Fisher, 2012), effectuation stresses improvising with current means and utilizing these means to create a marketable product or service.

While a relatively novel idea in the already young field of entrepreneurship, effectuation has met some heavy resistance in its efforts to take its place as a bona fide theory of entrepreneurship. Critics such as Arend, Sarooghi, & Burkemper (2015) contend that elements of the effectuation perspective have existed for decades, such as the continuous combination and recombination of "intermediate goods to produce consumer goods" (Chiles *et al.*, 2007, p. 473), and argue that for the theory to progress it must be further distanced from related theories, most notably entrepreneurial bricolage (Arend *et al.*, 2015). Fisher (2012), though, has offered persuasive evidence that despite sharing several similarities, effectuation and bricolage are also markedly distinct.

Specifically, in relation to approaches to entrepreneurial processes, and here, entrepreneurial process orientations, the ramifications of a bricolage perspective can be fruitfully combined with the effectuation perspective due to similarities between the two perspectives. The behaviors that support effectuation appear to be theoretically similar to the skill set required for

successful bricolage. For instance, entrepreneurs in both categories begin with a set of means and create something new from those means (Fisher, 2012), though the two theories then differ in regard to the role and amount of planning at the outset. The two theories also diverge on the issue of opportunities: effectual entrepreneurs seek to envision and effect an opportunity given the available alternatives created from their means; bricoleurs ignore the opportunity to instead engage in bricolage—or the act of making do with what is at hand (Fisher, 2012).

This effectuation perspective provides an important opportunity to deviate from the more popular discovery perspective, and provides entrepreneurs with a tool to use in new markets rife with uncertainty (Fisher, 2012). Discovery and effectuation are dissimilar in their view of uncertainty and in their basic principles (e.g. Alsos, Clausen, & Solvoll, 2014), though both are clearly differentially effective under certain conditions (Sarasvathy *et al.*, 2003).

This process of effectuation is similar to the creation perspective in that effectual entrepreneurs sometimes “create” an opportunity, but do so using their available resources to meet the needs of potential clientele, strongly making use of relationships within their network to do so (Sarasvathy, 2003). Thus, rather than inventing something new, effectual entrepreneurs simply combine what exists into previously unforeseen ways. Similar to creation entrepreneurs, effectual entrepreneurs may begin certain ventures without any assurance that demand will follow supply. By minimizing their loss, however, effectual entrepreneurs are able to fail, and fail again, until they succeed or exit entrepreneurship altogether.

While sharing some similarities with both the discovery and creation perspectives, effectual entrepreneurs differ from both in that effectual entrepreneurs may also first be presented with a need they then attempt to meet with what is immediately available, leveraging pre-commitments in an effort to reduce the element of uncertainty (Sarasvathy, 2003). Creation

entrepreneurs, in contrast, seek to create within potential clientele a need that they, the client, may not have even realized existed prior to being presented with the new good or service. Uncertainty thus influences the creation process to a much greater extent. As Edelman and Yli-Renko (2010) note, “creation entrepreneurs cannot anticipate the possible outcomes of their actions because the information required to do so has not been created yet.” In particular, while both perspectives share an objective of creating novel products and services, the skills required for effectuation diverge notably from creation. For instance, skills lending themselves more uniquely to effectuation include networking and social skills, and risk assessment, so as to apply the effectual boundary of affordable loss. The creation perspective for new ventures assumes no such tasks. The two perspectives do seem to share, though, a need to conduct sound internal analysis to determine available means. In past literature, effectuation has been treated as a subset of creation, yet the two, as argued here, are markedly distinct (e.g. Sarasvathy *et al.*, 2003; Corner & Ho, 2010; Fisher, 2012).

The effectuation perspective ties itself most closely with the risk-taking view of the IEO. While effectuation operates under conditions of uncertainty and not risk (Sarasvathy, 2001; Alvarez & Barney, 2007; Chandler *et al.*, 2011; Fisher, 2012), the risk-taking measure as defined in the IEO differs from the type of riskiness associated with the discovery perspective, which is more centered on probabilistic risk. Effectual entrepreneurs embrace this risk-taking in “taking bold actions by venturing in to the unknown, borrowing heavily and or committing significant resources to ventures in uncertain environments,” (Rauch, Wiklund, Lumpkin, & Frese, 2009: 763).

A Concluding note on the Three Perspectives

In total, the creation entrepreneur explores and innovates, the discovery entrepreneur analyzes, and the effectual entrepreneur assesses resources and assumes risk under affordable loss repeatedly until they succeed.

Although not the exact array of perspectives I examine herein Sarasvathy, Dew, Velamuri, and Venkataraman's (2003) model that delineates "allocative" (note: allocation is used instead of effectuation), when exploring allocative, discovery, and creation views of entrepreneurship, stated that each perspective "is useful under different circumstances, problem spaces, and decision parameters." This statement provides an important springboard towards a better understanding of entrepreneurship.

The discovery process, too, has been bolstered by other views and methods over the years. In fact, Alvarez *et al.*, (2013) noted that entrepreneurs indeed do more than "just discover" throughout the duration of their venture. For example, methods seen in the past as conflicting instead may employed simultaneously (Sarasvathy, 2001; Edelman & Yli-Renko, 2010). Mainela & Puhakka (2009) found, for instance, that because in some cases an opportunity may not have any "rules" in existence for its exploitation, discovery and effectuation must work in tandem. The savvy entrepreneur in such conditions would thus need to exploit while effectuating, effectively creating the rules by which future ventures will join in exploiting the same opportunity.

In light of the above discussion, Table 2 offers a summary of how the guiding assumptions, main tenets, important skill sets, general process tools, and behavioral orientation in terms of IEO factors can be categorized. Table 2 also includes the entrepreneurial process orientation associated with each theoretical perspective, which will be explained in the

paragraphs that follow. The ensuing differences in the most effective entrepreneurial process approaches for each perspective in turn support the value of a matching process orientation for the entrepreneurs.

Table 2. Entrepreneurial Process Orientation and Guiding Theoretical Approaches

| | Discovery | Creation | Effectuation |
|-----------------------|---|---|---|
| Guiding Assumption | Opportunities exist and await exploitation ^{1, 4} | Entrepreneurs must create opportunities, which do not otherwise exist ^{1, 6} | Entrepreneurs begin with existing means and craft from those means an opportunity that may or may not work—the entrepreneur will only know afterwards ^{2, 3} |
| Main Tenets | Causal ^{1, 2, 3, 4} | Imaginative ⁶ and iterative ⁸ | Envisioned and effected ^{1, 2, 3, 4, 6, 7} |
| Important Skill Sets | Environmental analysis, planning ⁴ , opportunity assessment ^{2, 3, 4} | Marketing analysis ¹ , internal analysis, creativity ⁶ , imagination, ⁶ and innovation ¹ | Internal analysis ^{2, 3, 4} , risk assessment ^{2, 3, 4} , networking ^{2, 3, 4, 7} , improvisation ^{2, 3, 4, 6} |
| General Process Tools | Business plan, business canvas map, five forces, value-chain, PESTEL analysis, etc. | Consumer and marketing analysis ¹ , creativity ⁶ and innovation ^{1, 5} , sales ¹ , bootstrapping ¹ | Improvisation and remaining flexible ^{2, 3, 4} , networking ^{2, 3, 4, 7} , social skills ^{2, 3, 4} , risk assessment ^{2, 3, 4} , affordable loss ^{2, 3, 4} |

Table 2. Entrepreneurial Process Orientation and Guiding Theoretical Approaches (Continued)

| | | | |
|--|---|---|--|
| Behavioral Orientation | Proactiveness ^{1, 2, 3, 4} | Innovativeness ^{1, 5} | Risk-taking ^{2, 3, 4} |
| Entrepreneurial process orientation | Entrepreneurial Process Orientation- Discovery | Entrepreneurial Process Orientation-Creation | Entrepreneurial Process Orientation- Effectuation |

1. (Alvarez & Barney, 2007)
2. (Sarasvathy, 2001)
3. (Fisher, 2012)
4. (Chandler *et al.*, 2011)
5. (Hmieleski *et al.*, 2015)
6. (Lachmann, 1986)
7. (Jack & Anderson, 2002)
8. (Smith *et al.*, 2016)

In the following paragraphs, I discuss the entrepreneurial process and how it pertains to each theoretical perspective, i.e. why it is useful to recognize each perspective as signally important in describing entrepreneurs and their behaviors. I then elaborate further on each theoretical perspective. In particular, I discuss each perspective's historical underpinnings, current theoretical state, current state in practice, and associated important skillsets. I conclude this chapter by discussing individual entrepreneurial orientation and behavioral orientation as they relate to the entrepreneurial process, and provide justification for the remaining chapters.

Entrepreneurial Process

The entrepreneurial process varies across the research literature, which reflects the wide differences in forming a venture experienced by each type entrepreneur (discovery, creation, and effectuation). However, as one would expect given the nature of venture formation, some general similarities among entrepreneurial processes along each theoretical perspective exist. That said, the entrepreneurial process associated with the discovery perspective generally follows a pattern similar to the following: opportunity recognition, opportunity evaluation and assessment of expected return, business plan creation, and venture formation. The entrepreneurial process associated with the creation perspective, in contrast, generally follows a pattern similar to the following: opportunity creation resulting from innovation and imagination, venture formation, and ongoing internal analysis and consumer analysis. Lastly, the entrepreneurial process associated with the effectuation perspective generally follows a pattern similar to the following: assessment of available means, assessment of affordable loss, obtaining pre-commitments from social network, opportunity creation or exploitation, and venture formation. Table 3 provides an outline of each process as has been briefly discussed, as well as archetypes, companies, and

contemporary products and services associated with each perspective. Some examples of each perspective contained within the literature follow.

Table 3. Associations with Each Theoretical Perspective

| | Discovery | Creation | Effectuation |
|---|--|--|---|
| Archetype | Michael Porter | Nikola Tesla | Jeff Bezos |
| Company Example | Monitor Group | Tesla Electric Company | Blue Origin |
| Contemporary Example | Concealed Solar Panels | Augmented Reality | Sharing Economy |
| View of Opportunities | Discovered | Created | Envisioned and Effected |
| Common Steps in Entrepreneurial Process | 1. Opportunity Recognition 2. Opportunity Evaluation and Assessment of Expected Return 3. Business Plan Creation 4. Venture Formation | 1. Opportunity Creation 2. Venture Formation 3. Ongoing Internal Analysis and Consumer Analysis | 1. Assessment of Available Means 2. Setting Affordable Loss Threshold 3. Obtaining Pre- commitments from Social Network 4. Opportunity Creation or Exploitation 5. Venture Formation |

Each theoretical perspective is described here with an archetype and several examples that make intuitive sense and help illuminate a reality in which entrepreneurs do not follow a one-size-fits-all approach. For example, Michael Porter, generally hailed as the father of modern strategy for his focus on key tools within environmental analysis such as the Five Forces, embodies a discovery perspective where the entrepreneur would conduct environmental analysis, create a business plan, and determine expected return in preparation for forming their venture. His consulting company, Monitor Group, solved problems for clients through this approach. Concealed solar panels represent a contemporary example of an entrepreneurial endeavor best served by discovery, as the product formed around an existing market need.

In contrast, Nikola Tesla, inventor of several unique technologies, would be best served in the creation perspective of inventing, seeking patents, and working to form a business around that idea *ex post*. Tesla Electric Company embodies some of his unique creative ideas. As a contemporary example of creative entrepreneurship, augmented reality received initial support with games such as Pokémon Go. Importantly, interest in the phenomenon has tapered off, which similarly represents some of the high risk associated with the creation perspective. The market of Pokémon Go players burned brightly and hotly for time, and then fascination promptly, and unexpectedly, dropped off for most individuals.

When thinking of the effectuator archetype, one thinks of both Elon Musk and Jeff Bezos with their efforts in civilian space travel. Each took resources already available to them in the form of huge sums of capital, and created companies SpaceX and Blue Origin respectively. Other contemporary examples stem from the sharing economy, in which individual small-scale entrepreneurs use means readily available, such as vehicles in the case of companies Uber and Lyft, and homes or apartments in the case of Airbnb. In addition to the archetypes, company

examples, and contemporary examples, each theoretical perspective follows a general process that has been examined, often unevenly, in past literature.

Varied Entrepreneurial Processes

Several studies have elaborated a process that reflects a discovery perspective. Magnusson, Merenda, & Gittell (2011) described the entrepreneurial process in the context of sustainable entrepreneurship, but the general process they posited first begins with an opportunity and then moves on to the entrepreneur who recognizes the opportunity. The entrepreneurial process then moves on to product concept, resources, and ends with entry strategy. Similarly though, in addressing opportunity development, Ardichvili, Cardozo, and Ray (2000) conceptualized the process as market needs, similar to opportunities, leading to business concepts, to business plans, to business formation, and finally, to a successful enterprise.

Baron (2008) proposed a theoretical model of the role of affect on the entrepreneurial process, which he defined as opportunity recognition, acquisition of financial and human resources, development of broad social networks, capacity to respond effectively dynamic environments, and tolerance for intense levels of stress. Jack & Anderson (2002) also described social factors, embeddedness specifically, as being important within the entrepreneurial process.

The centrality of entrepreneurial creativity is highlighted in many studies that provide a creation perspective type of process. Brazeal and Herbert (1999) described the entrepreneurial process as beginning with environmental change and progressing to innovation before ending at an entrepreneurial event, describing a process arising more from the creation perspective in that the entrepreneurial event occurs as a result of the entrepreneur, and not separate from them.

While more rare, some studies appear to clearly indicate effectual processes. Birley (1985) in discussing the idea of a “still-born idea” described the entrepreneurial process as

moving from idea or product to defining required resources, examining whether the defined resources are obtainable, and if the resources are not obtainable then moving onto the potential of the idea to be refined – similar to effectuation. While this initially seems to fit the creation perspective as well, which speaks to the reason the two have been treated as indistinct in past literature, it is the examination of available resources and subsequent moving on if the resources are not obtainable that defines this approach as effectuation. Later, Birley (1985) also described the process in a local context as one that is geographically constrained, stating that a local person moves to set up a small firm, employs local people, and trades locally – similar again to effectuation in that the entrepreneur uses the means readily available.

With the recognition of, and goal of resolving, these warring perspectives of the entrepreneurial process, Hindle (2010) proposed a harmonized conceptual model of the entrepreneurial process that contains an ongoing process driven by output and feedback with the following facets: evaluation of an opportunity's existence, generic and contextual evaluation, creation of a business model, commitment, exploitation, and capture of value. While I agree that harmonization within the debate is needed, Hindle adheres to the existing dichotomy between causal and creation logics, and fails to differentiate creation and effectuation specifically. Moreover, instead of elaborating three entrepreneurial processes, Hindle collapses the various elements of what is conceptualized here as three different patterns of venture formation into a single approach, implying different emphases on steps for the different patterns argued here.

Next, I link the existence of different entrepreneurial processes to the idea that entrepreneurs will differ in their orientation to these processes. Specifically, I give an overview of the person-environment fit literature and detailing some of its importance in related

management fields to then introduce its applicability for our more elaborated model of entrepreneurial perspectives, which will be developed further in Chapter 3.

Person-environment Fit

The domain of person-environment fit research (Kristof, 1996) encompasses a wide array of perspectives, such as person-vocation and person-career fit, person-organization fit, person-group fit, and person-supervisor fit—all contained within the larger person-environment (P-E) fit theory (Hsu, Burmeister-Lamp, Simmons, Foo, Hong, & Pipes, 2019). The basic premise of P-E fit is that stress and strain result from misfit between a person and their environment (Edwards, Caplan, & Van Harrison, 1998). Absence of misfit, or fit, ensures a lower level of stress and strain, and generally, prior studies have found that misfit increases undesirable organizational outcomes (Edwards *et al.*, 1998).

Authors have also contended that person-entrepreneurship fit (Markman & Baron, 2003) and perceived person-entrepreneurship fit (Hsu *et al.*, 2019) should also enter the fit sphere. While these additions add important insight to the burgeoning literature predicting entrepreneurial career success, they conceptualize entrepreneurship as a binary fit – i.e. entrepreneur vs. non-entrepreneur. Entrepreneurial research, on the other hand, indicates that the entrepreneurship processes (and hence, skill sets) elaborated here, likely vary widely based on their theoretical perspective; in particular, I focus here on the different interests and skill sets associated with the three theoretical perspectives of discovery, creation, and effectuation.

In the context of the entrepreneur, misfit between entrepreneur and process, i.e. founding behavior, could lead to more serious organizational outcomes given the small size of entrepreneurial firms and their relative vulnerability. In essence, rather than lowered job satisfaction, the consequence would be firm failure.

Conclusion

The three perspectives of discovery, creation, and effectuation and their associated processes share some similarities yet are notably different from one another. In the following chapter, I develop the construct of entrepreneurial process orientation, relying on the theory reported within Chapter 2. I will also build upon the discussion on fit introduced here to show its importance to entrepreneurship in general and for the current study.

Chapter 3: Theoretical Development

In recent years, universities have jumped into the entrepreneurial arena (Singer, 2015), in particular because of entrepreneurship's driving relationship to economic growth (Aghion, 2017). In recognition of this importance, the research herein seeks to expand past efforts to differentiate entrepreneur from non-entrepreneur, towards further differentiating entrepreneurs from one another. The work to date has asserted that while entrepreneurs may differ from non-entrepreneurs, differences among entrepreneurs are not meaningful in regard to moving entrepreneurship research forward. In this dissertation, though, the potential that entrepreneurs differ in their interests, skills, and likelihood to pursue a new venture according to the three perspectives elaborated in the previous chapter (discovery, creation, and effectuation) is argued to be a matter of great import. Indeed, a lack of recognition of these differences is likely to overlook the importance of matching entrepreneurs to the unique approach and goal of a new venture toward which their type inclines.

Accordingly, I introduce the new concept of "entrepreneurial process orientation," or EPO. This orientation view proposes that there exist several, different kinds of entrepreneurs who will be most successful if they pursue entrepreneurial endeavors in a way consistent with their orientation, i.e., ensure proper fit between their personality characteristics and the type of

entrepreneurial process, or founding behaviors, they pursue. I compose these orientations to reflect the three perspectives on venture formation of discovery, creation, and effectuation.

While recent research stresses that individual-level characteristics are related to entrepreneurial intentions and success (Zhao, Seibert, & Lumpkin, 2010), the lens presented herein reflects that different configurations of these characteristics are likely to exist and provide some equifinality in success if individuals pursue a corresponding emphasis in their approach to entrepreneurship.

By assessing an individual's entrepreneurial orientation, scholarship can move beyond the dichotomous emphasis on whether an individual is suitable to be an entrepreneur at all, towards better understanding and labelling exactly what type of entrepreneur a person may be: one who discovers opportunities, one who creates opportunities, or one who effectuates alongside and in the face of opportunities, envisioning the possibilities that exist given current means. Moreover, this conceptualization of an optimal fit offers specificity and direction for would-be entrepreneurs to build the appropriate set of matching competencies. Together, this combines the personality and competency approaches to entrepreneurship roles (Wagener, Gorgievski, & Rijdsijk, 2010) by ensuring entrepreneurs have a key insight that will help them move forward in an already-difficult journey; i.e., an understanding of how to combine, or fit, facets of their own personality, their EPO, to a corresponding approach to entrepreneurship processes and venture formation via specific founding behaviors.

In the paragraphs that follow, I expound upon EPO, differentiating each type and describing the founding behaviors associated with each particular type. I follow the order used above and in entrepreneurship literature in general: EPO-Discovery, EPO-Creation, and EPO-Effectuation. Following discussion on EPO and associated founding behaviors, I discuss the application of fit to entrepreneurship and its importance in the relationship between EPO and

founding behaviors, as well as its influence on firm performance. To conclude the chapter, I introduce hypotheses and pave the way for Chapter 4, Method and Analysis.

Entrepreneurial Process Orientations

Eckhardt and Shane (2003), in their advocacy for opportunities and opportunity recognition as central to entrepreneurship, argued that “the field is better served by studies of the entrepreneurial process itself than studies which focus on normative arguments for the performance of individual entrepreneurs” (2003:345). This dissertation similarly stresses the value of the entrepreneurial process, with the caveat that the literature has offered very different perspectives on what is involved in the entrepreneurship process based on associated assumptions; here I concentrate on the discovery, creation, and effectuation perspectives.

For example, in the discovery perspective, the entrepreneurial process looks something like the following: opportunity recognition, opportunity evaluation and assessment of expected return, business plan creation, and venture formation. The entrepreneurial process associated with the creation perspective, in contrast, generally follows a pattern similar to the following: opportunity creation resulting from innovation and imagination, venture formation, and ongoing internal analysis and consumer analysis. Lastly, the entrepreneurial process associated with the effectuation perspective generally follows a pattern similar to the following: assessment of available means, assessment of affordable loss, creation of plan to minimize risk, obtaining pre-commitments from social network, opportunity envisioning, and venture formation.

Extending ideas from research based on the individual entrepreneurial orientation (Kollmann, Christofor, & Kuckertz, 2007) I expand the idea of orientation to encompass a more comprehensive view of entrepreneurship that differs along the three theoretical perspectives, which I refer to as “entrepreneurial process orientations” or EPOs. With this view, entrepreneurs

are not seen as “one size fits all” but rather that some individuals are likely to succeed within the analytical and strategic skills in the discovery paradigm, while others are more attuned to the creative, out-of-the-box, innovative thinking in the creation paradigm, and equally important, some individuals thrive in social networking and envisioning possibilities from available means necessary for success at effectuation. Each approach to the entrepreneurial process signals very different types of individual characteristics that should be successful for launching a venture. I discuss each EPO and the associated founding behaviors for each type further in the following paragraphs before turning to a discussion of fit within entrepreneurship and its importance to the relationship between EPO and founding behavior.

EPO-Discovery

EPO-Discovery represents the general entrepreneurial model followed in both business schools and in most entrepreneurship literature studied to date. Given the widespread awareness of the discovery perspective, many view this type as the paragon of entrepreneurial excellence, and indeed simply the most common (Venkataraman, 1997; Gaglio & Katz, 2001; Shane, 2003; Alvarez *et al.*, 2013)

While some variation naturally exists, the process associated with EPO-Discovery generally looks like the following: opportunity recognition, opportunity evaluation and assessment of expected return, business plan creation, and venture formation. Founding behaviors thus include items such as formulating business plans, assessing expected return, planning and goal-setting, market analysis, environmental analysis, industry analysis, and creating financial projections.

EPO-Creation

While newer in the entrepreneurship literature, the creation perspective and its type, EPO-Creation represent a view of more innovative, inventive entrepreneurship. These individuals stand in stark contrast to their EPO-Discovery counterparts in that the heavy analysis important to the EPO-Discovery type can actually harm creative endeavors familiar to the EPO-Creation type (Alvarez and Barney, 2007).

The entrepreneurial process associated with the creation perspective thus emphasizes other skills, and follows a pattern similar to the following: opportunity creation resulting from innovation and imagination, venture formation, and ongoing internal analysis and consumer analysis. Founding behaviors thus include items such as ideation, ethnographic research, marketing analysis, patent applications, and developing proprietary technology.

EPO-Effectuation

Though it is the newest of the three theoretical perspectives examined herein, the effectuation perspective and associated EPO-Effectuation type stand apart from both EPO-Discovery and EPO-Creation in important ways. Rather than a focus on opportunity discovery or creation, for example, effectuation simply begins with existing means and envisions from them potential endeavors. Rather than focus on any kind of external analysis or ethnographic research, an EPO-Effectuation type selects an alternative around which a market may or may not form, and simply exits the alternative once a threshold of affordable loss has been reached (Sarasvathy, 2001; Sarasvathy, 2003; Fisher, 2012).

Accordingly, the entrepreneurial process associated with the effectuation perspective generally follows a pattern similar to the following: assessment of available means, assessment of affordable loss, creation of plan to minimize risk, obtaining pre-commitments from social

network, envisioning alternatives, and venture formation. Pivots may also be more common within the effectuation sphere due to the focus within of leveraging contingencies (Read, Sarasvathy, Dew, & Wiltbank, 2016), also known as the lemonade principle of effectuation (Duening, Shepherd, & Czaplewski, 2012). Founding behaviors associated with EPO-Effectuation thus include items such as assessing means and affordable loss, promotional efforts, and discussion with potential customers.

The Application of Fit to Entrepreneurship

Fit at the individual level (Brigham & Castro, 2003) has been used in many contexts, but has been largely focused on similar, albeit importantly different, phenomena: e.g., person-vocation and person-career fit, person-organization fit, person-group fit, and person-supervisor fit (Kristof, 1996; Kristof-Brown, 2000; Kristof-Brown, Barrick, Stevens., 2005; Kristof-Brown, Zimmerman, Johnson 2005; Morley, 2007). A central assumption in this approach is that the success of the studied phenomenon is contingent on a match between personal characteristics and the key environmental constraints and demands within which they work – in my model, entrepreneurial process orientation and its fit to entrepreneurial process, or founding behaviors. Fit in entrepreneurship, though, is relatively new.

Markman & Baron (2003) introduced fit to entrepreneurship by creating the “person-entrepreneurship” construct. In this perspective, the entrepreneurship choice is one in which a potential entrepreneur needs to have characteristics that match a singular depiction of the entrepreneurship process, i.e., “creating new companies by transforming discoveries into marketable items” (Markman & Baron, 2003: 281).

Some past work has related entrepreneurial success to fit issues with narrow features of entrepreneurship. For instance, research indicates value for a fit between the entrepreneur and the

type of opportunity they pursue, such as social versus commercial (Riedo, Kraiczy, Hack, 2017) or the opportunity's financial or market realities (Miller, Munoz & Hurt, 2016; Serviere-Munoz, Hurt & Miller, 2015). Drawing from a person-organization fit perspective, for instance, growth in small technology firms was found to be spurred by a fit between the founder's cognitive style (i.e., intuitive decision making) and the formalization of the organization (Brigham, Mitchell & De Castro, 2010).

Similarly, Hsu *et al.* (2019) delineated their perspective from person-entrepreneurship fit by introducing the construct of "perceived person-entrepreneurship fit." In their approach, true person-entrepreneurship fit can only be examined after venture engagement in the entrepreneurship process. In particular, successful entrepreneurship requires that the entrepreneur fits their personal needs with what starting a business offers, irrespective of their level of entrepreneurial self-efficacy (Hsu *et al.*, 2019) This idea reflects the entrepreneur/non-entrepreneur dichotomy. While these studies have moved the conversation forward regarding how success in entrepreneurship is contingent on a match between the entrepreneur and a particular constellation of necessary entrepreneurial skill sets, they assume certain dominant views of the entrepreneurship process are universally applicable, ignoring potential differences among entrepreneurs. Concepts such as the entrepreneurial process orientation, and scales based upon them, could provide insight into an individual's proclivities prior to engagement in the entrepreneurship process.

Some research suggests that oft-lauded entrepreneurial traits are likely to be successful, but contingent, on a matching environment: networking ability positively influences financial performance, but only through mediation by the new venture network size and strength of network relationships, and only for very young startups (Semrau & Sigmund, 2012). Based on

this prior research, I expand this inquiry to examine other traits important to other EPO types, where networking should be most important for EPO-Effectuation. In sum, not only is there reason to believe that fit concepts are important to successful venture formation, but that such fit parameters may vary based on features of the entrepreneurial process that are necessary for particular types of startup endeavors.

Lastly, if fit is important in increasing entrepreneurial success, a natural extension is that misfit is equally impactful in terms of decreasing entrepreneurial success. Misfit may cause increased stress and greater discomfort (Vogel, Rodell, & Lynch, 2016), and has been linked to undesirable workplace behaviors such as greater intention to quit, increased likelihood to turnover, experience lower job satisfaction, and experience lower job performance (Edwards & Cable, 2009; Kristof-Brown, Zimmerman, & Johnson, 2005; Rich, Lepine, & Crawford, 2010; Schneider, 1987). Extending past evidence to entrepreneurship, one can see how misfit would cause a similar array of negative behaviors, and furthermore would require the individual to work harder to resolve both the cognitive misfit and a lowering of self-efficacy, potentially causing early and unnecessary dropping out from the entrepreneurial process (Chen, Gully, & Eden, 2004; McGee, Peterson, Mueller, & Sequeira, 2009).

Applying an entrepreneurial process orientation approach, and thereby increasing fit between entrepreneur and venture, presents such an opportunity to reduce the aforementioned negative effects. Specifically, a misfit between a person's entrepreneurial process orientation and the process they actually pursue augurs a higher likelihood of failure due to an increase in coping behavior (Brigham, de Castro, & Shepherd, 2004). Importantly though, by recognizing multiple process variations, many more individuals are likely to find paths to success by assuring a match between their orientation and the process they pursue. Thus I explore the following:

Hypothesis 1: Fit between an individual's EPO and their entrepreneurial process behaviors will be positively related to venture survival.

Failure can be particularly harmful to entrepreneurs in multiple spheres, whether failure be for internally or externally attributed reasons (Yamakawa, Peng, & Deeds, 2015). For example, Singh, Corner, & Pavlovich (2007) found that entrepreneurs suffer in four key areas post-failure, namely economic, social, psychological, and physiological, in turn decreasing their willingness to try their hand at new ventures. Because entrepreneurship acts as such an important driver of economic growth, any effort that can alleviate some of these negative effects is advised.

In past empirical work, higher levels of fit have been associated with higher levels of performance (Brigham & De Castro, 2003), such as in manufacturing practices (Ketokivi & Schroeder, 2004), financial performance of mergers and acquisitions based on cultural fit between firms (Weber, 1996), and in international marketing (Katsikeas, Samiee, & Theodosiou, 2006). Thus, recognizing that compensating mechanisms of persistence by entrepreneurs may avert actually allowing the firm to fail, I also consider whether fit implications can be discovered more limitedly in the domain of financial performance. Thus extending past fit literature to the idea of match between EPO and the entrepreneurial process, I posit the following:

Hypothesis 2: Fit between an individual's EPO and their entrepreneurial process behaviors will be positively related to financial performance.

Incorporating an Entrepreneurial Process Orientation into Understanding Performance

The introduction of the Entrepreneurial Process Orientation (EPO) construct is consistent with fit theory in that it proposes critical dimensions for the person-side of the person-environment fit, and stresses the optimal entrepreneurial process approach as the environmental feature that should be accommodated. Research remains nascent, though, on the contingencies

that determine which of the three perspectives should dominate in any particular venture startup. Nevertheless, assuming a particular entrepreneurial process approach is advisable, I contend individuals differ in both their interest and skillset to pursue their appropriate entrepreneurial process approach. Figure 1 below illustrates that the model, namely that fit between EPO and founding behavior, should positively influence both venture survival and financial performance.

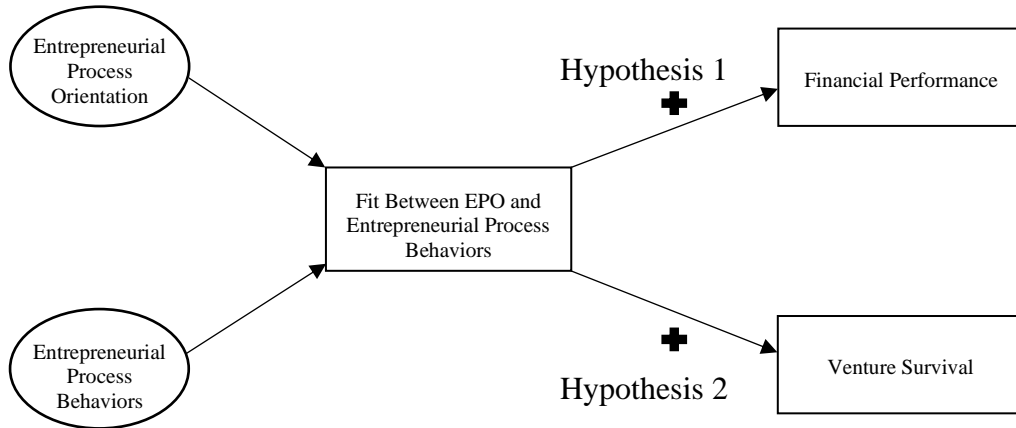


Figure 1. Model of Entrepreneurial Process Orientation and Entrepreneurial Process Fit

Entrepreneurship is often conceptualized and studied as an individual-level phenomenon. Accordingly, this research examines entrepreneurs at an individual level, and importantly, studies how entrepreneurs differ amongst one another. Specifically, in aligning personality traits with the associated entrepreneurial process, which I will refer to in references to *founding behaviors*, greater levels of fit will be achieved. While this foray into EPO was guided by prior theory built towards the discovery, creation, and effectuation perspectives, further research on the EPO could most likely extend to several facets of personality such as the Five Factors Model of Personality, or Big 5, Myers-Brigs Type Indicator, the NEO Personality Inventory, and others. This primary entrepreneurial process orientation reflects differences in individual characteristics potentially exhibited by each individual entrepreneur, which differences then may lead to differing processes pursued by each entrepreneur. A barrier currently exists, however, applied by

our own incomplete knowledge, which trains every entrepreneur in a perspective – discovery – that may be inconsistent with their primary entrepreneurial process orientation. Multiple perspectives can be efficacious, and as prior literature has shown (Alvarez *et al.*, 2013), all perspectives are valuable at different times, dependent on the situation at hand. However, each individual has a primary perspective towards which they gravitate, or their entrepreneurial process orientation.

In the next chapter, I will discuss my data, methods and analysis for a test of EPO-founding behavior fit to firm survival and firm performance.

Chapter 4: Method and Analysis

Sample

In order to study the relationship between fit and outcomes such as firm performance and survival, this study utilized the Panel Study of Entrepreneurial Data (PSED) database (Curtin, & Reynolds, 2018), which contains several years of longitudinal data on entrepreneurs gathered by the University of Michigan Institute for Social Research. The PSED database was created as the culmination of a study to gather information on venture creation and the individuals who seek to do so, in an effort to better explain what factors lead to venture success. The PSED database has, thus far, studied two separate cohorts of nascent entrepreneurs who were still in the startup process at the onset of data gathering.

Cohort one (PSED I) was recruited from 1998-2000, leading to 62,612 cases, from which data screening yielded a sample of 533 still participating in the study by the fourth annual interview. Cohort two (PSED II) was recruited from late 2005 to early 2006 leading to 31,845 cases, including two screener interviews at 12 and 24 months, from which data screening yielded

a sample of 1,214 active nascent entrepreneurs still participating in the study by the end of the screening.

For the current research, only PSED II was used. Several improvements to method were made in PSED II and thus it presents an opportunity for more robust findings. PSED II also contains more data overall than PSED I, increasing its power for this study. Lastly, PSED II also contains more recent data, making the findings more relevant for today's entrepreneurs and scholars. Three questions were used in the PSED II database screening. Taken from Reynolds (2011), these questions are:

1. Are you, alone or with others, currently trying to start a new business, including any self-employment or selling any goods or services to others?
2. Are you, alone or with others, currently trying to start a new business or new venture for your employer, an effort that is part of your normal work?
3. Are you, alone or with others, currently the owner of a business you help manage, including self-employment or selling any goods or services to others?

It should be noted that some entrepreneurs appeared to have attained a profit prior to the first screener interview, and some of those were in the process of reactivating dormant businesses during this time. Were those removed, the sample would be reduced to 1,148. To control for several additional factors, the data was weighted according to recommendations given by the creators of the PSED databases. This weighting adjusted for differences in sample bias, startup team size, and time in the startup process prior to reaching profit or quitting, acting to standardize startup date and eliminate variance simply due to when the venture had begun. Due to these weights, the sample was reduced even further to 852.

Following screening, each entrepreneur completed an annual survey for four years, via phone, in order for researchers with the University of Michigan to obtain information on the current state of the business. For those who had exited the venture, an exit interview was conducted to obtain additional data regarding the reasoning behind the exit, which could include a pivot into a separate business.

Variables

PSED II contains 7,879 variables spread across 26 categories assessing various items such as start-up activities, founder characteristics, community resources, etc.

The variables selected for this investigation of entrepreneurial process orientation focused on the individual characteristics of the entrepreneurs, founding behavior undertaken by the entrepreneur, and various outcomes focused on firm survival and financial performance. All variables used within the study can be found in Table 4 below, excluding control variables which can be found in Table 5. The key analysis assessed how the level of *fit* between an entrepreneurial process orientation and the entrepreneurial process reported by the entrepreneur, or founding behaviors, affects firm survival and financial performance. Fit herein was defined using an absolute approach, meaning either an entrepreneur fit in a particular category, denoted as the number one, or they did not, denoted by the number zero.

Dependent Variables

Outcome was originally measured in the database as a variable entitled *outcome*, and was measured at one month, three months, and then at three-month intervals from three months up to 72 months. Potential answers included:

1. New firm: profit, meaning the venture had attained profit at that point in time;

2. Active startup, meaning the venture had not attained a profit but had not failed at that point in time;
 3. Quit, meaning the venture had closed; and
99. Missing data.

The current research sought to prove the influence of fit between EPO and founding behavior on two planes of firm performance, survival and financial performance. As such, the original variable *outcome* was recoded into two new variables of interest, *profit* and *survival*, each measured at the same time intervals as the original variable.

Given the dichotomous nature of both new variables, i.e. either a firm had attained profit at a specific time interval or it had not, and a firm had either survived at a specific time interval or it had not, both were coded as 1 if the case were true and 0 if the case were false. Profit was measured at 12 months and survival was measured at 60 months.

Attaining a profit at 12 months is incredibly rare (Davidson, 2019). In fact, many new businesses do not even achieve a profit until their third year. Thus, measuring at 12 months represents an area of key importance for entrepreneurs. The rationale behind measuring firm survival at 60 months is because around half of all businesses fail by 60 months (Small Business Administration, 2019). As both hypotheses state above, I expect that instances of firms attaining a profit by 12 month and instances of firms surviving at 60 months will be greater for entrepreneurs whose EPO fits with the founding behaviors they undertook to start their new venture.

Independent Variables

Given the somewhat exploratory nature of defining and ultimately validating EPO as a construct, a joint approach towards variable selection was employed for both EPO variables and

founding behavior variables. Namely, prior theory heavily drove variable selection. Specifically, the literatures on the discovery, creation, and effectuation perspectives informed the assignments of variables to the three categories.

Table 4 below lists individual characteristic and founding behavior variables selected for the study. It should be again noted that, based on the fact that at various times entrepreneurs use tools associated with several theoretical perspectives (Sarasvathy, 2001; Mainela & Puhakka, 2009; Edelman & Yli-Renko, 2010; and Alvarez *et al.*, 2013), entrepreneurs necessarily engage in founding behaviors, and exhibit varying individual characteristics and traits, associated with all three theoretical perspectives throughout the period measured within the PSED database. The variables as a whole, however provide a profile for characterizing each type of entrepreneur and their associated EPO type. For example, while a creation EPO may engage in discovery EPO behaviors such as business plans, overall, the use business plans as a tool by a creation EPO is noticeably lower. Similar patterns emerged elsewhere between each type, and will be discussed in greater detail within the results of the cluster analysis.

Table 4. PSED Individual Characteristics and Founding Behaviors Variables used in Study

| PSED Variable Description – Individual Characteristics | PSED Variable – Individual Characteristics |
|---|---|
| Starting this new business is much more desirable than other career opportunities I have. | AY4: Agree: New bus. better career opportunity |
| If I start this new business, it will help me achieve other important goals in my life. | AY5: Agree: New bus. help achieve goals |
| Overall, my skills and abilities will help me start this new business. | AY6: Agree: Skills help start new bus. |
| My past experience will be very valuable in starting this new business. | AY7: Agree: Past experience valuable |
| I am confident I can put in the effort needed to start this new business. | AY8: Agree: Can put in effort needed |
| I enjoy having a clear and structured mode of life. | AY12: Agree: Structured mode of life |
| I enjoy the uncertainty of going into a new situation without knowing what might happen. | AY13: Agree: Enjoy uncertainty of new sit. |
| I dislike it when a person’s statement could mean many different things. | AY15: Agree: Dislike ambiguous statements |
| I enjoy having a clear and structured mode of life. | AY 16: Agree: Consider different opinions |

Table 4. PSED Individual Characteristics and Founding Behaviors Variables used in Study (Continued)

| PSED Variable Description - Founding Behaviors | PSED Variable |
|---|--|
| <p>A business plan usually outlines the markets to be served, the products or services to be provided, the resources required -- including money -- and the expected growth and profit for the new business. Have you already begun preparation of a business plan for this new business, will you prepare one in the future, or is a business plan not relevant for this new business?</p> | <p>AD1: Preparation of bus. plan started</p> |
| <p>Have marketing or promotional efforts been started for the product or service this new business will be selling, will marketing or promotional efforts begin for the product or service this new business will be selling, or is this not relevant to the new business?</p> | <p>AD9: Promotional efforts started</p> |
| <p>Has this new business developed any proprietary technology, processes, or procedures that no other company can use, will it develop proprietary technology, processes, or procedures in the future, or is this not relevant to the new business?</p> | <p>AD11: Business developed proprietary tech</p> |

Table 4. PSED Individual Characteristics and Founding Behaviors Variables used in Study (Continued)

| | |
|--|--|
| Has an application for a patent, copyright, or trademark relevant to this new business been submitted, will an application be submitted in the future, or is this not relevant for the new business? | AD13: Application for patent submitted |
| Has an effort been made to talk with potential customers about the product or service of this new business, will an effort be made to talk to potential customers in the future, or is this not relevant for the new business? | AD20: Discussion w/potential customers |
| Has an effort been made to collect information about the competitors of this new business, will an effort be made to collect information about competitors in the future? | AD22: Collect info about competitors |
| Has an effort been made to define the market opportunities for this new business, will an effort be made to define market opportunities, or is this not relevant for this new business? | AD24: Market opportunities defined |
| Have financial projections, such as income or cash flow statements or break-even analyses, been developed, will financial projections be developed in the future, or is this not relevant for the new business? | AD26: Financial projections developed |

Control Variables

Control variables are important to include because of their potential influence on the relationship between independent variables and dependent variables, as well as their own potential direct influence on the dependent variable itself. Each control has been selected due to its influence proven in past entrepreneurship literature. Table 5 lists all control variables relevant to the current study, as well as studies that prove their use justified. The control variables included in the study and their descriptive statistics are listed in the paragraphs that follow:

Table 5. Justification of Control Variables

| Control Variable | Prior Literature Justifying Use | Level of Measurement |
|-------------------------|---|-----------------------------|
| Region | Karlsson & Dahlberg, 2003; Audretsch & Keilbach, 2004; Mueller, 2006 | Nominal |
| Metropolitan Status | Chrisman, Gatewood, & Donlevy, 2002; Acs & Malecki, 2003; Drabentstott, Novack, & Abraham, 2003 | Nominal |
| Sex | De Bruin, Brush, & Welter, 2006; De Bruin, Brush, & Welter, 2007; Robinson, 2007; Wei & Zhang, 2011 | Nominal |
| Education | Van Praag, 2003; Van der Sluis, Van Praag, & Vijverberg, 2008; Oosterbeek, Van Praag, & Ijsselstein, 2010 | Ordinal |
| Race | Aldrich & Waldinger, 1990; Mengistae, 1999; Fairlie & Robb, 2008 | Nominal |
| Experience in Industry | Van Praag, 2003; Reynolds & Curtain, 2008; Michael & Combs, 2008 | Ratio |

Region. Region refers to commonly divided areas of the United States, for which categories included West, Midwest, Northeast, and South.

REGION (4 RECODED)

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|-----------|---------|---------------|--------------------|
| Valid | West | 199 | 23.4 | 23.4 | 23.4 |
| | Midwest | 181 | 21.3 | 21.3 | 44.7 |
| | Northeast | 121 | 14.2 | 14.2 | 58.9 |
| | South | 350 | 41.1 | 41.1 | 100.0 |
| | Total | 852 | 100.0 | 100.0 | |

Metropolitan status. Metropolitan status refers to proximity of a business to a city’s metropolitan center, for which categories included the following: Metro – in center city of metropolitan area, Outside center city, inside center city county, Inside suburban county of metropolitan area, In metropolitan area with no center city, and Non-Metro – in non-metropolitan area.

METROPOLITAN STATUS

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Metro -- in center city of metropolitan area | 297 | 34.9 | 34.9 | 34.9 |
| | Outside center city, inside center city county | 170 | 20.0 | 20.0 | 54.9 |

| | | | | |
|---|-----|-------|-------|-------|
| Inside suburban county of metropolitan area | 160 | 18.8 | 18.8 | 73.7 |
| In metropolitan area with no center city | 22 | 2.6 | 2.6 | 76.3 |
| Non-Metro -- in non-metropolitan area | 202 | 23.7 | 23.7 | 100.0 |
| Total | 852 | 100.0 | 100.0 | |

Sex. Sex refers to whether a participant was male or female.

SEX

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------|-----------|---------|---------------|--------------------|
| Valid Male | 447 | 52.5 | 52.5 | 52.5 |
| Female | 405 | 47.5 | 47.5 | 100.0 |
| Total | 852 | 100.0 | 100.0 | |

Education. Education refers to the highest level of education attained by the entrepreneur, for which categories included the following categories: Eighth grade or less, High school incomplete, High school complete, Some college, Associate's degree, Bachelor's degree, Postgraduate degree, and Refused. Prior literature (Van Praag, 2003) has found education to be a significant predictor of entrepreneurial success and survival.

EDUCATION

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|---------------------------|-----------|---------|------------------|-----------------------|
| Valid | Eighth grade or less | 2 | .2 | .2 | .2 |
| | High school incomplete | 41 | 4.8 | 4.8 | 5.0 |
| | High school complete | 224 | 26.3 | 26.4 | 31.3 |
| | Some college | 214 | 25.1 | 25.2 | 56.5 |
| | Associates degree | 76 | 9.0 | 9.0 | 65.5 |
| | Bachelors degree | 188 | 22.0 | 22.1 | 87.7 |
| | Postgraduate degree | 105 | 12.3 | 12.3 | 100.0 |
| | Total | 849 | 99.6 | 100.0 | |
| Missing | Refused | 3 | .4 | | |
| Total | | 852 | 100.0 | | |

Race w/Hispanic separate. Race refers to commonly accepted, socially defined differences between humans, for which categories included the following: White, Black, Asian, Other, White/Black, White/Asian, White/Other, Black/Asian, Black/Other, Asian/Other, White/Black/Asian, White/Black/Other, White/Asian/Other, White/Black/Asian/Other, Hispanic, and Refused.

RACE W/ HISPANIC SEPERATE

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|-----------------------------|-----------|---------|------------------|-----------------------|
| Valid | White | 511 | 60.0 | 60.1 | 60.1 |
| | Black | 178 | 20.9 | 21.0 | 81.1 |
| | Asian | 5 | .6 | .6 | 81.6 |
| | Other | 40 | 4.7 | 4.7 | 86.3 |
| | White/Black | 2 | .2 | .2 | 86.5 |
| | White/Other | 7 | .8 | .8 | 87.3 |
| | Black/Asian | 17 | 2.0 | 2.0 | 89.3 |
| | Black/Other | 2 | .2 | .2 | 89.5 |
| | White/Black/Asian | 5 | .6 | .6 | 90.1 |
| | White/Black/Other | 0 | .0 | .0 | 90.2 |
| | White/Black/Asian/Ot her | 2 | .2 | .2 | 90.4 |
| | Hispanic | 82 | 9.6 | 9.6 | 100.0 |
| | Total | 850 | 99.7 | 100.0 | |
| Missing | Refused | 2 | .3 | | |
| Total | | 852 | 100.0 | | |

Experience in industry. A continuous variable, experience in industry refers to how many years of experience each individual had in the industry prior to starting the business in question. Responses ranged from 0 to 54, with a mean of 7.14 and a standard deviation of 8.86.

Prior literature has found that prior experience is critical to entrepreneurial success and survival (Van Praag, 2003; Reynolds & Curtin, 2008). Indeed, prior experience in the industry has been a past requirement for franchisors to trust franchisees with the brand name and help ensure greater odds of success (Michael & Combs, 2008).

YEARS EXPERIENCE IN INDUSTRY

| | | |
|----------------|---------|-------|
| N | Valid | 849 |
| | Missing | 3 |
| Mean | | 7.14 |
| Median | | 3.00 |
| Std. Deviation | | 8.858 |
| Range | | 54 |
| Minimum | | 0 |
| Maximum | | 54 |

Chapter 5: Analyses and Results

Cluster Analysis

In order to analyze the data, I conducted two-step cluster analysis to see if EPO and founding behavior each clustered as expected. Cluster analysis is largely used in exploratory analysis, and seeks to determine underlying patterns within the data by comparing and contrasting individual cases. A good cluster has data which are similar to one another and different from data in other clusters, called cohesion and separation respectively. While a variety of clustering techniques exist, I selected two-step cluster analysis because it is especially appropriate for large data sets (Norusis, 2012).

A key concern in any cluster analysis is the question of how to select the number of clusters. A variety of techniques exist with this step as well. The data itself can indicate the proper number of clusters. Though prior theory can also justify the selection of number of clusters for a study (Ketchen & Shook, 1996), which herein included the use of three clusters, namely discovery, creation, and effectuation for both EPO and founding behaviors. Given the study design, theory-driven clusters were most appropriate. I selected only the most relevant variables justified by prior theory, listed above in Table 4, also attempting to select an equal number of variables for each theory, i.e. two for discovery, two for creation, and two for effectuation. In the case of the EPO cluster, nine variables were used. For the founding behavior (FB), eight variables were used.

While performing the cluster analysis for both EPO and FB variables, I ensured cluster quality by examining the average cluster silhouette coefficient, a measure of reliability, which measures the cohesion between cluster variables and their separation from other cluster centers with values from negative one to one (Norusis, 2012; Nelson, 2014; & Rundle-Thiele, Kubacki, Tkazynski, & Parkinson, 2015). A cluster silhouette of at least 0.2 is necessary for cluster structure (Nelson, 2014). The average cluster silhouette for both the EPO and founding behavior clusters was 0.2, indicating acceptable cluster structure. Additionally, a lower silhouette coefficient value is expected given the typological, rather than taxonomical structure of the construct.

After ensuring acceptable cluster quality, the next steps involve examining both reliability and validity. Reliability can be assessed by splitting the sample and comparing the clusters formed from each half (Ketchen & Shook, 1996; Hair, Anderson, Tatham, & Black, 1998), and also by sorting the data, as cluster formation is affected by case order. Table 6 below

contains the sample cluster size and modes of each variable in each cluster. Clusters were similar in the split samples and when sorting the data.

I used mode as a measure of central tendency in naming each cluster because the use of mean for categorical data is highly controversial, and mode provides a measure of frequency that makes it more appropriate for this type of study. I also examined the overall distribution of answers for each variable in naming each cluster. Doing so reinforced that entrepreneurs do gravitate towards one EPO and its associated process, yet sometimes the lines between each approach are not immediately clear, indicating again that entrepreneurs do utilize multiple processes.

Table 6. Response Modes by Full Sample, Half A, and Half B for Each Cluster

| EPO Variables | Creation | Discovery | Effectuation |
|---|---|--|---|
| Size (Full sample, Half A, Half B) | n=413 (34.2%) n=139 (38.7%) n=144 (35.7%) | n=353 (29.2%) n=84 (23.4%) n=120 (29.8%) | n=441 (36.5%) n=136 (37.9%) n=139 (34.5%) |
| Agree: New bus. better career opportunity | A (61.5%) A (57.9%) A (64.3%) | SA (79.9%) SA (80.2%) SA (65.5%) | A (46.3%) A (56.3%) SA (48.5%) |
| Agree: New bus. help achieve goals | A (76.5%) A (78.9%) A (71.9%) | SA (89.8%) SA (83.2%) SA (74.4%) | A (58.3%) SA (68.4%) A (50.0%) |
| Agree: Skills help start new bus. | A (88.1%) A 86.6%) A (89.8%) | SA (94.1%) SA (90.1%) SA (90.1%) | SA (68.0%) SA (70.9%) SA (75.0%) |

| Table 6. Response Modes by Full Sample, Half A, and Half B for Each Cluster (Continued) | | | |
|--|-----------|------------|------------|
| Agree: Past experience valuable | A (80.4%) | SA (88.4%) | SA (70.5%) |
| | A (83.3%) | SA (79.7%) | SA (81.0%) |
| | A 78.3%) | SA (78.8%) | SA (82.0%) |
| Agree: Can put in effort needed | A (90.3%) | SA (96.6%) | SA (76.2%) |
| | A (88.0%) | SA (91.1%) | SA (79.1%) |
| | A (88.1%) | SA (87.2%) | SA (82.0%) |
| Agree: Structured mode of life | A (72.4%) | SA (51.8%) | A (54.4%) |
| | A (68.4%) | A (42.1%) | A (41.1%) |
| | A (73.2%) | SA (47.8%) | A 63.0%) |
| Agree: Enjoy Uncertainty of new Situation | A (39.5%) | SA (29.2%) | A (44.0%) |
| | D (40.2%) | A (39.6%) | D (33.5%) |
| | A (43.8%) | SA (29.1%) | A (54.0%) |
| Agree: Dislike ambiguous statements | A (60.3%) | A (37.1%) | A (46.0%) |
| | A (57.9%) | A (44.6%) | A (34.2%) |
| | A (62.1%) | SA (32.5%) | A (60.0%) |

| Table 6. Response Modes by Full Sample, Half A, and Half B for Each Cluster (Continued) | | | |
|--|---|---|--|
| Agree: Consider different opinions | A (78.9%) A (78.0%) A (77.4%) | SA (60.6%) SA (54.0%) SA (70.9%) | A (63.9%) A (60.1%) A (84.0%) |
| FB Variables | Creation | Discovery | Effectuation |
| Size (Full sample, Half A, Half B) | n=378 (32.6%) n=173 (31.5%) n = 177 (29.0%) | n=401 (34.6%) n=279 (54.1%) n = 208 (34.0%) | n=381 (32.8%) n=79 (14.4%) n=226 (37.0%) |
| Preparation of business plan started | NY (64.8%) NY (75.7%) NY (51.4%) | Y (75.8%) Y (81.5%) Y (73.1%) | N (44.6%) N (60.8%) N (38.5%) |
| Promotional efforts started | NY (64.8%) NY (62.4%) NY (68.9%) | Y (71.6%) Y (58.9%) Y (76.4%) | N (61.2%) N (81.0%) N (60.2) |

| Table 6. Response Modes by Full Sample, Half A, and Half B for Each Cluster (Continued) | | | |
|--|------------|-------------|------------|
| Business developed proprietary tech | N (73.0%) | N (73.6%) | N (92.1%) |
| | N (81.5%) | N (75.8%) | N (98.7%) |
| | N (58.8%) | N (79.3%) | N (92.5%) |
| Application for patent submitted | N (62.2%) | N (66.1%) | N (89.2%) |
| | N (65.3%) | N (69.0%) | N (100.0%) |
| | NY (63.7%) | N (77.4%) | N (92.0%) |
| Discussion with potential customers | Y (57.1%) | Y (90.8.1%) | Y (54.1%) |
| | Y (50.9%) | Y (91.2%) | Y (36.7%) |
| | NY (49.7%) | Y (91.8%) | Y (55.3%) |
| Collect info about competitors | Y (52.1%) | Y (81.8%) | N (67.2%) |
| | Y (39.9%) | Y (71.0%) | N (68.4%) |
| | Y (46.3%) | Y (80.8%) | N (60.6%) |
| Market opportunities defined | NY (65.1%) | Y (89.3%) | N (68.8%) |
| | NY (48.0%) | Y (68.4%) | N (81.0%) |
| | NY (61.0%) | Y 81.7%) | N (73.5%) |

Table 6. Response Modes by Full Sample, Half A, and Half B for Each Cluster (Continued)

| | | | |
|---------------------------------|------------|-----------|------------|
| Financial projections developed | NY (86.8%) | Y (61.1%) | N (52.0%) |
| | NY (76.9%) | Y (48.1%) | N (78.5%) |
| | NY (90.4%) | Y (62.0%) | NY (42.9%) |

*All rows follow the pattern listed in the "Size" column and list the full sample first, followed by Half A and then Half B.

**SA=Strongly Agree; A=Agree; Y=Yes; NY=Not yet, will in future

Given sufficient reliability, the cluster cases for EPO and FB were compared against one another to compute a new variable, *EPO fit*, a binary variable. If an entrepreneur exhibited behaviors of EPO-E, for example, and undertook primarily effectuation founding behaviors, they were coded as 1, indicating that their EPO fit their FB. If instead they were EPO-E and undertook either creation or discovery founding behaviors primarily, they were coded as 0, indicating misfit between EPO and FB.

Next, criterion-related validity was assessed using significance tests alongside external variables (Aldenderfer and Blashfield, 1984), herein using profit and firm survival in binary logistic regression. Each was assessed in a binary fashion, in that at 12 months, a firm had either attained profit or not, and at 60 months, a firm had survived a major hurdle in its life or had not. Given the nature of the variables, binary logistic regression was employed as the proper significance test, results of which are reported and discussed at greater length below. At a summary, however, the significance of *EPO fit*'s influence on whether a firm had attained profit at 12 months indicated criterion-related validity, though the influence of fit upon survival at 60 months was insignificant, indicating concerns regarding criterion-related validity.

Lastly, external validity of clusters was tested by running a cluster analysis for both EPO and FB variables within the PSED I database. Use of a second, similar holdout sample can be used to prove external validity where available (Hair *et al.*, 1998). While the overall collection of variables between the two databases was remarkably similar, in some cases, not all variables from PSED II were available in PSED I. For instance, some variables from PSED I were broken apart into two or three variables in PSED II, presumably to better break apart related concepts with different components. For example, the question, "Has an effort been made to define the market opportunities by talking with potential customers or getting information about the

competition?” from PSED I was broken apart into three separate questions in PSED II. As can be seen in Table 7 below, the three clusters from PSED I were of a similar size and structure, thus showing consistency with those from PSED II, indicating external validity.

Table 7. Cluster Variables and Characteristics using PSED I

| EPO Variables | Creation | Discovery | Effectuation |
|---|---------------|---------------|---------------|
| Sample Size | n=247 (45.1%) | n=163 (29.7%) | n=138 (25.2%) |
| Skills and abilities will help | GA (72.9%) | CA (90.8%) | CA (61.6%) |
| Past experience very valuable | GA (59.5%) | CA (85.9%) | CA (75.4%) |
| Confident I can put in effort | GA (68.8%) | CA (93.9%) | CA (76.8%) |
| Will help me achieve other goals | GA (47%) | CA (89.6%) | GA (64.5%) |
| Starting business more desirable | GA (39.7%) | CA (76.1%) | GA (58.7%) |
| Best business ideas just come | N (31.2) | GD (21.5%) | N (32.6%) |
| Opportunity may not be available | GA (28.3%) | CD (29.4%) | GA (27.5%) |
| FB Variables | Creation | Discovery | Effectuation |
| Sample Size | n=176 (26.4%) | n=285 (42.8%) | n=205 (30.8%) |
| Started marketing, promotional efforts | N (98.3%) | Y (59.6%) | Y (98.0%) |
| Developed projected financial statements | N (100.0%) | Y (73.7%) | N (88.3%) |
| Has a business plan been prepared | N (79.0%) | Y (91.6%) | N (56.1%) |
| Developed physical models or prototypes still in the idea stage | IS (39.8%) | CR (37.2%) | CR (70.2%) |

| Table 7. Cluster Variables and Characteristics using PSED I (Continued) | | | |
|--|------------|------------|------------|
| Invested any own money in business | Y (70.5%) | Y (89.5%) | Y (98.5%) |
| Effort to define market opportunities | Y (69.3%) | Y (94.4%) | Y (82.4%) |
| Applied for patent, copyright, trademark | NR (75.6%) | N (99.6%) | N (97.6%) |
| Apply for patent or not relevant | NR (75.6%) | NR (72.6%) | NR (78.5%) |

*CA=Completely Agree; GA=Generally Agree; N=Neutral; GD=Generally Disagree; Y=Yes; N=No; IS=Still in Idea Stage; CR=Completed and Ready; NR=Not Relevant

Although the PSED database contains longitudinal data, I posited that only one year of data would be needed for clusters to form among entrepreneurs as a group, i.e. entrepreneurs would cluster in terms of activities undertaken into one of the three related EPO types: EPO-Discovery, EPO-Creation, and EPO-Effectuation. Clusters did indeed form within this time. Additionally, the clusters were constrained to one year to limit leading, which would have been a concern in using more than one year because the same questions were asked of the same entrepreneur year after year. Thus, when asked whether they were engaging in certain behaviors year after year, entrepreneurs may have felt the need to engage in process tasks inconsistent, and even conflicting, with their primary entrepreneurial process orientation, increasing the likelihood of committing a type I error.

While cluster analysis is often exploratory in nature, it can be used to confirm data structure when proper methods are followed to ensure reliability and validity, herein reported above. The results from this study as discussed above indicated both. As seen in Tables 6 and 7, cluster structure differed importantly between the three clusters. In particular, both EPO-D and FB-D were filled with cases wherein preparation, planning, forecasting, and analysis were particularly important where in EPO-C and FB-C clusters, attitudes and behaviors geared towards intense planning were noticeably lower while attitudes towards patents and proprietary technology were higher than in both discovery and effectuation-informed clusters. Additionally, the creation clusters also indicated less familiarity towards commonly accepted entrepreneurial processes, and a lack of a defined path, than observed in discovery and effectuation-informed clusters. EPO-E and FB-E clusters indicated a recognition of the importance of past skills, abilities, and also a massive difference in the case of using personal differences in PSED I, while also indicating less of a focus on planning, preferring instead to enact their reality rather than

planning for an opportunity. Now discussion turns to the results of the binary regression, and following that conclude this dissertation with a discussion of the results and implications.

Binary Logistic Regression

Binary logistic regression is an appropriate data analysis technique used when outcome variables are dichotomous in nature, which was the case in this study. In the case of profit, measured at 12 months, either a business had attained said profit or not. In the case of survival, measured at 60 months, either a business had survived the five-year hurdle, or it had not.

Additionally, binary logistic regression has the benefit of avoiding many of the assumptions required of linear regression, yet does suffer particularly from multicollinearity. Thus I ensured no independent variables were strongly correlated by computing the Pearson correlation of the independent variables, in addition to assessing the variance inflation factor (VIF) of each variable in models for both profit at 12 months and survival at 60 months.

The VIF is a common tool researchers employ to assuage concerns of multicollinearity. While some question the efficacy of the use of a rule of thumb and its value to research (O'Brien, 2007), a value of less than 10 is generally accepted as indicating absence of significant collinearity. The highest VIF in when the dependent variable was profit at 12 months was 1.717 for High School Complete. The highest VIF when the dependent variable was survival at 60 months was 1.631 for those living in a Non-metro area. Both values indicate absence of significant collinearity between predictors, and thus a lack of multicollinearity as a concern. In order to compute both correlations and VIF, all control variables were recoded into indicator variables. Descriptive statistics of all variables and their correlations can be found in Table 8 below.

Model quality itself can be assessed using Chi-squared values of overall model fit, and furthermore, comparing model predictability against a base model. In this case, the base model predicted that 100% of firms would not attain profit within 12 months, which prediction would be correct 78.5% of the time. The model including fit and all control variables correctly predicted, at 96.4% that most firms would not attain profit by 12 months. It was correct less often at predicting whether profit would be attained at 12 months, at only 57.6% accurate. However, the overall model prediction was higher than that of the base model, with an overall correct prediction rate of 88.1%. A significant ($p < .001$) chi-square value of 219.717 indicates good model fit.

The base model for survival at 60 months predicted correctly 58% of the time that 100% of firms would not still be in business at 60 months. In contrast, the model including fit and all control variables predicted at 80% that most firms would not still be in business at 60 months, and at 53% that about half of all firms would be in business at 60 months. Overall, the model is an improvement over the base model, being correct 68.5% of the time where the base model was correct only 58% of the time. Furthermore, with a significant ($p < 0.001$) chi-square value of 138.102, the model fits the data well.

Lastly, while binary logistic regression does not provide a bona-fide R^2 value, it does give pseudo- R^2 values, which approximate the amount of variance in the dependent variable explained by the independent variables. SPSS output provides two pseudo- R^2 values, Cox & Snell R Square and Nagelkerke R Square, of which Nagelkerke R Square can be preferred because it adjusts the scale of the value from zero to one, for which reason Nagelkerke R Square is used herein. The Nagelkerke R Square value for profit at 12 months was .383, while it was .231 for survival at 60 months. Thus, the model explains 38.3% variance in profit at 12 months,

and 23.1% of the variance in survival at 60 months. Results from the binary logistic regressions can be found in Tables 9 and 10 below.

The purpose of this study was to determine whether fit between EPO and FB, or the process entrepreneurs undertake to form their new business ventures, influenced profit and survival rates. Specifically, I hypothesized the following:

Hypothesis 1: EPO Fit will be positively related to financial performance.

Hypothesis 2: EPO Fit will be positively related to venture survival.

Running a binary logistic regression of fit on profit at 12 months yielded a significant ($p=0.036$), positive result, indicating significant support for Hypothesis 1. Moreover, with an odds ratio of 1.631, fit between an entrepreneur's EPO and the founding behavior they undertake makes them 1.6 times more likely to attain profit within 12 months than an entrepreneur who lacks fit between EPO and FB. The regression of fit on firm survival at 60 months yielded a positive relationship, albeit not statistically significant ($p=0.322$), and thus Hypothesis 2 was not supported. Together, these results indicate that fit is indeed important, particularly in terms of attaining early profit, though other factors may be more important in determining survival.

Table 8. Variable Sample Sizes, Means, Standard Deviations, and Correlations

| | N | Mean | Std. Dev. | Profit at 12 Months | Survival at 60 Months |
|-----------------------------------|-----|--------|-----------|---------------------|-----------------------|
| Region | | | | | |
| West | 852 | 0.2340 | 0.42361 | 0.054 | 0.046 |
| Midwest | 852 | 0.2129 | 0.40960 | -0.028 | -0.032 |
| Northeast | 852 | 0.1422 | 0.34946 | -.147** | -.098** |
| South | 852 | 0.4109 | 0.49229 | .083* | 0.059 |
| Metropolitan Status | | | | | |
| CityCenter | 852 | 0.3490 | 0.47695 | 0.015 | 0.032 |
| OutsideCityCenterInsideCityCounty | 852 | 0.1999 | 0.40016 | .188** | .130** |
| SuburbanCounty | 852 | 0.1878 | 0.39081 | -0.049 | -0.021 |
| MetroAreaNoCityCenter | 852 | 0.0258 | 0.15874 | -.089* | -.100** |
| NonMetro | 852 | 0.2374 | 0.42574 | -.115** | -.102** |
| Sex | | | | | |
| Male | 852 | 0.5247 | 0.49968 | -.214** | -.106** |
| Female | 852 | 0.4753 | 0.49968 | .214** | .106** |
| Education | | | | | |
| EighthGradeorLess | 849 | 0.0019 | 0.04318 | -0.024 | 0.033 |
| HighSchoolIncomplete | 849 | 0.0478 | 0.21355 | -.123** | -.084* |
| HighSchoolComplete | 849 | 0.2636 | 0.44084 | .239** | .093** |
| SomeCollege | 849 | 0.2518 | 0.43428 | -.179** | -0.069 |
| Associates | 849 | 0.0901 | 0.28648 | -0.065 | -0.057 |
| Bachelors | 849 | 0.2214 | 0.41544 | .091** | .081* |
| Postgraduate | 849 | 0.1234 | 0.32914 | -.069* | -0.042 |
| Race | | | | | |
| White | 850 | 0.6010 | 0.48997 | -.096** | -.135** |
| Black | 850 | 0.2095 | 0.40722 | .285** | .243** |

Table 8. Variable Sample Sizes, Means, Standard Deviations, and Correlation (Continued)

| | | | | | |
|------------------------------|-----|--------|---------|---------|---------|
| Asian | 850 | 0.0055 | 0.07431 | -0.041 | -0.030 |
| Race: Other | 850 | 0.0469 | 0.21156 | -.088* | -0.040 |
| WhiteBlack | 850 | 0.0019 | 0.04304 | -0.024 | 0.005 |
| WhiteOther | 850 | 0.0080 | 0.08914 | -0.049 | -0.009 |
| BlackAsian | 850 | 0.0199 | 0.13971 | -.078* | -.128** |
| BlackOther | 850 | 0.0023 | 0.04785 | -0.026 | -0.039 |
| WhiteBlackAsian | 850 | 0.0062 | 0.07865 | .145** | .096** |
| WhiteBlackOther | 850 | 0.0005 | 0.02159 | -0.012 | 0.026 |
| WhiteBlackAsianOther | 850 | 0.0021 | 0.04570 | .087* | 0.055 |
| Hispanic | 850 | 0.0962 | 0.29499 | -.136** | -0.028 |
| Other | | | | | |
| Years Experience in Industry | 258 | 6.86 | 9.039 | .178** | .163* |
| EPO Fit | 809 | 0.3456 | 0.47587 | 0.030 | 0.030 |
| Profit at 12 Months | 821 | 0.2226 | 0.41624 | 1 | .641** |
| Survival at 60 Months | 780 | 0.4272 | 0.49498 | .641** | 1 |

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

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

c. Cannot be computed because at least one of the variables is constant.

Table 9. Binary Logistic Regression of EPO Fit on Profit at 12 Months

| | B | S.E. | Wald | df | Sig. | Exp(B) | 95% C.I. for EXP(B) | |
|--------------|-------|-------|--------|----|-------|--------|---------------------|-------|
| | | | | | | | Lower | Upper |
| EPO Fit | 0.489 | 0.233 | 4.405 | 1 | 0.036 | 1.631 | 1.033 | 2.576 |
| Region: West | | | 18.303 | 3 | 0.000 | | | |

| Table 9. Binary Logistic Regression of Fit on Profit at 12 Months (Continued) | | | | | | | | |
|--|-------------|-----------|--------|---|-------|-------|-------|-------|
| Region: Midwest | 0.570 | 0.293 | 3.786 | 1 | 0.052 | 1.768 | 0.996 | 3.138 |
| Region: Northeast | -0.483 | 0.326 | 2.193 | 1 | 0.139 | 0.617 | 0.326 | 1.169 |
| Region: South | -0.964 | 0.415 | 5.410 | 1 | 0.020 | 0.381 | 0.169 | 0.859 |
| Metropolitan Status: CityCenter | | | 10.772 | 4 | 0.029 | | | |
| Metropolitan Status: OutsideCityCenterInsideCityCounty | 0.206 | 0.324 | 0.404 | 1 | 0.525 | 1.229 | 0.651 | 2.319 |
| Metropolitan Status: SuburbanCounty | 0.871 | 0.320 | 7.426 | 1 | 0.006 | 2.390 | 1.277 | 4.473 |
| Metropolitan Status: MetroAreaNoCityCenter | 0.002 | 0.345 | 0.000 | 1 | 0.995 | 1.002 | 0.509 | 1.971 |
| Metropolitan Status: NonMetro | - 18.955 | 8201.014 | 0.000 | 1 | 0.998 | 0.000 | 0.000 | |
| Sex: Male | -0.538 | 0.236 | 5.182 | 1 | 0.023 | 0.584 | 0.368 | 0.928 |
| Education: EighthGradeorLess | | | 30.839 | 6 | 0.000 | | | |
| Education: HighSchoolIncomplete | - 17.589 | 35988.346 | 0.000 | 1 | 1.000 | 0.000 | 0.000 | |

| Table 9. Binary Logistic Regression of Fit on Profit at 12 Months (Continued) | | | | | | | | |
|--|-------------|-----------|--------|----|-------|--------|-------|--------|
| Education: HighSchoolComplete | - 18.789 | 6070.809 | 0.000 | 1 | 0.998 | 0.000 | 0.000 | |
| Education: SomeCollege | 1.906 | 0.460 | 17.158 | 1 | 0.000 | 6.729 | 2.730 | 16.586 |
| Education: Associates | 0.510 | 0.501 | 1.037 | 1 | 0.309 | 1.665 | 0.624 | 4.442 |
| Education: Bachelors | 1.119 | 0.558 | 4.031 | 1 | 0.045 | 3.063 | 1.027 | 9.135 |
| Education: Postgraduate | 1.624 | 0.448 | 13.137 | 1 | 0.000 | 5.076 | 2.109 | 12.217 |
| Race: White | | | 25.985 | 11 | 0.007 | | | |
| Race: Black | 1.602 | 0.534 | 8.996 | 1 | 0.003 | 4.965 | 1.742 | 14.146 |
| Race: Asian | 2.465 | 0.582 | 17.937 | 1 | 0.000 | 11.759 | 3.759 | 36.791 |
| Race: Other | - 17.613 | 15757.875 | 0.000 | 1 | 0.999 | 0.000 | 0.000 | |
| Race: WhiteBlack | 0.633 | 0.860 | 0.542 | 1 | 0.462 | 1.883 | 0.349 | 10.156 |
| Race: WhiteOther | - 18.530 | 30197.951 | 0.000 | 1 | 1.000 | 0.000 | 0.000 | |

| Table 9. Binary Logistic Regression of Fit on Profit at 12 Months (Continued) | | | | | | | | |
|--|-------------|-----------|--------|---|-------|-----------------|--------|------------|
| Race: BlackAsian | - 17.956 | 15443.266 | 0.000 | 1 | 0.999 | 0.000 | 0.000 | |
| Race: BlackOther | - 17.599 | 9773.993 | 0.000 | 1 | 0.999 | 0.000 | 0.000 | |
| Race: WhiteBlackAsian | - 19.018 | 28376.198 | 0.000 | 1 | 0.999 | 0.000 | 0.000 | |
| Race: WhiteBlackOther | 8.020 | 2.884 | 7.733 | 1 | 0.005 | 3040.243 | 10.667 | 866498.770 |
| Race: WhiteBlackAsianOther | - 17.805 | 57177.550 | 0.000 | 1 | 1.000 | 0.000 | 0.000 | |
| Race: Hispanic | 24.627 | 30153.589 | 0.000 | 1 | 0.999 | 49580181454.873 | 0.000 | |
| Years Experience in Industry | 0.034 | 0.013 | 6.978 | 1 | 0.008 | 1.034 | 1.009 | 1.060 |
| Constant | -4.608 | 0.765 | 36.317 | 1 | 0.000 | 0.010 | | |

Table 10. Binary Logistic Regression of EPO Fit on Survival at 60 Months

| | B | S.E. | Wald | df | Sig. | Exp(B) | 95% C.I. for EXP(B) | |
|---|--------|-------|--------|----|-------|--------|------------------------|-------|
| | | | | | | | Lower | Upper |
| EPO Fit | 0.182 | 0.183 | 0.981 | 1 | 0.322 | 1.199 | 0.837 | 1.718 |
| Region: West | | | 9.065 | 3 | 0.028 | | | |
| Region: Midwest | 0.193 | 0.231 | 0.698 | 1 | 0.403 | 1.213 | 0.771 | 1.908 |
| Region: Northeast | -0.443 | 0.244 | 3.286 | 1 | 0.070 | 0.642 | 0.398 | 1.037 |
| Region: South | -0.447 | 0.273 | 2.681 | 1 | 0.102 | 0.639 | 0.374 | 1.092 |
| Metropolitan Status: CityCenter | | | 11.853 | 4 | 0.018 | | | |
| Metropolitan Status: OutsideCityCenterInsideCityCounty | -0.024 | 0.240 | 0.010 | 1 | 0.920 | 0.976 | 0.609 | 1.563 |
| Metropolitan Status: SuburbanCounty | 0.533 | 0.255 | 4.379 | 1 | 0.036 | 1.704 | 1.034 | 2.806 |
| Metropolitan Status: MetroAreaNoCityCenter | 0.260 | 0.262 | 0.980 | 1 | 0.322 | 1.296 | 0.775 | 2.168 |

| | | | | | | | | |
|---------------------------------|--------|-----------|--------|----|-------|----------------|-------|-------|
| Metropolitan Status: NonMetro | -1.722 | 0.856 | 4.054 | 1 | 0.044 | 0.179 | 0.033 | 0.955 |
| Sex: Male | -0.210 | 0.182 | 1.331 | 1 | 0.249 | 0.811 | 0.567 | 1.158 |
| Education: EighthGradeorLess | | | 15.548 | 6 | 0.016 | | | |
| Education: HighSchoolIncomplete | 22.362 | 35977.042 | 0.000 | 1 | 1.000 | 5149980308.367 | 0.000 | |
| Education: HighSchoolComplete | -0.665 | 0.497 | 1.786 | 1 | 0.181 | 0.514 | 0.194 | 1.364 |
| Education: SomeCollege | 0.616 | 0.299 | 4.252 | 1 | 0.039 | 1.851 | 1.031 | 3.323 |
| Education: Associates | 0.568 | 0.310 | 3.358 | 1 | 0.067 | 1.765 | 0.961 | 3.242 |
| Education: Bachelors | 0.230 | 0.372 | 0.384 | 1 | 0.536 | 1.259 | 0.608 | 2.608 |
| Education: Postgraduate | 0.761 | 0.298 | 6.529 | 1 | 0.011 | 2.141 | 1.194 | 3.838 |
| Race: White | | | 15.931 | 11 | 0.144 | | | |
| Race: Black | -0.147 | 0.279 | 0.277 | 1 | 0.599 | 0.863 | 0.500 | 1.492 |
| Race: Asian | 0.894 | 0.345 | 6.733 | 1 | 0.009 | 2.446 | 1.245 | 4.807 |
| Race: Other | -0.203 | 1.239 | 0.027 | 1 | 0.870 | 0.816 | 0.072 | 9.258 |
| Race: WhiteBlack | -0.106 | 0.462 | 0.053 | 1 | 0.818 | 0.899 | 0.363 | 2.226 |

| Table 10. Binary Logistic Regression of Fit on Survival at 60 Months (Continued) | | | | | | | | |
|---|---------|-----------|--------|---|-------|----------------|-------|--------|
| Race: WhiteOther | 0.145 | 1.833 | 0.006 | 1 | 0.937 | 1.157 | 0.032 | 41.999 |
| Race: BlackAsian | -0.320 | 0.922 | 0.121 | 1 | 0.728 | 0.726 | 0.119 | 4.422 |
| Race: BlackOther | -21.048 | 9773.993 | 0.000 | 1 | 0.998 | 0.000 | 0.000 | |
| Race: WhiteBlackAsian | -21.488 | 31771.098 | 0.000 | 1 | 0.999 | 0.000 | 0.000 | |
| Race: WhiteBlackOther | 22.088 | 17472.730 | 0.000 | 1 | 0.999 | 3916596367.183 | 0.000 | |
| Race: WhiteBlackAsianOther | 21.866 | 60722.936 | 0.000 | 1 | 1.000 | 3135004127.180 | 0.000 | |
| Race: Hispanic | 20.418 | 30153.589 | 0.000 | 1 | 0.999 | 736710258.624 | 0.000 | |
| Years Experience in Industry | 0.048 | 0.010 | 22.246 | 1 | 0.000 | 1.049 | 1.029 | 1.071 |
| Constant | -1.153 | 0.439 | 6.917 | 1 | 0.009 | 0.316 | | |

Chapter 6: Discussion

Traditionally, entrepreneurs have been taught, and otherwise molded by society to consider a singular approach to pursuing entrepreneurship. Prior theory, though, informs us that multiple processes can be valuable under various circumstances. The results within not only confirm that, but furthermore indicate that fitting the entrepreneur to the processes undertaken to form a new venture has ramifications towards success. While failure at 60 months was not mitigated as hypothesized, that may in part relate to the data itself. The data from both PSED databases was gathered at times in which the discovery perspective was largely the only perspective available, and indeed the perspective upon which existing knowledge focused.

The PSED database, while an amazing resource, was created prior to widespread acceptance of both the creation and effectuation approaches to entrepreneurship, and thus founding behavior variables largely leaned towards the discovery approach. While behaviors did manifest in relation to three separate EPOs, behaviors inconsistent with an individual entrepreneur's primary EPO may very well have been undertaken as the entrepreneur learned more about entrepreneurship and encountered the nearly exclusive focus on discovery perspective founding behaviors. Thus, creation and effectual entrepreneurs may have, as a result of their education, felt the need to undertake discovery perspective founding behaviors such as creating a business plan, calculating financial projections, conducting competitive analysis, and defining their market in terms of environmental analysis. In this sense, this study provides a very conservative context for studying our hypotheses.

Despite the widespread focus on discovery, however, the data did not disappoint in large part and did prove the value of EPO as a new construct, and furthermore that fit does matter in regard to profit. Given the prevailing, and indeed entrenched, attitude towards the discovery

perspective as the proper method of venture formation, even were the database created today, I would expect similar structure and questions. That said, efforts to change this focus are not only merited given the findings of this research, but helpful towards a new generation of entrepreneurs. I believe further analysis with updated data will yield stronger results than evidenced here, and that further study and reeducating the world of entrepreneurship as to what is acceptable, will only enhance the effect of the new venture for building economies.

A planned experiment, particularly, may be able to parse out the differences between perspectives further. Neuroentrepreneurship lends itself uniquely to this venture, as it allows the researcher to delve down to a very minute level in terms of physiology. This approach would also help move past some of the shortcomings of self-report surveys.

Implications for Theory, Research, and Education

In this work I added to the current literature and helped move forward the often-heated debate among the competing theoretical perspectives of entrepreneurship with special emphases on its impacts in the realm of entrepreneurship education. Entrepreneurship education tends to focus almost exclusively on the discovery perspective, though education utilizing effectuation is on the rise (Mäkimurto-Koivumaa & Puhakk, 2013). The EPO construct, which I studied using variables from the PSED database, should contribute to enlarging our understanding of who can be included in the potential population of entrepreneurs, as well as how entrepreneurs differ from one another. A fully fleshed-out EPO will encompass a range of variables at the individual level, accommodating the fact that entrepreneurs can and do differ from one another. This more comprehensive EPO could expand to include several psychological instruments such as the Myers-Briggs Type Indicator and the NEO Personality Inventory, or test other personal characteristics such as decision-making styles. Understanding the characteristics which

differentiate entrepreneurs from one another presents a signal opportunity to create more effective educational methods for improving students' chances at success in becoming entrepreneurial, by becoming different types of entrepreneurs. Below I discuss several implications for theory, research, and education.

Implications for Theory

The study of entrepreneurship is relatively new in the management literature, and has quickly grown to become a compelling field for inquiry. Venture creation is of substantive importance as a primary instrument of economic growth (Aghion, 2017), and thus studying how entrepreneurship is conducted and how it can be made more successful can serve as a useful driver for both increased and continued economic growth.

Entrepreneurship research has thus far, though, been primarily dominated by two central theoretical perspectives—discovery and creation. Creation has been conceptualized as incorporating several differing, though similar, methods, including effectuation and bricolage (Sarasvathy, 2001; Baker & Nelson, 2005; Fisher, 2012; Smith *et al.*, 2016). I have proposed differentiating effectuation from creation and granting it an equal footing, outlining important differences between the three perspectives in their approach to the entrepreneurial process.

In particular, I pointed out that creation and effectuation perspectives can be viewed as distinct and different where in the past some researchers have treated effectuation as a subset of creation. I have explored how an entrepreneur following each perspective would begin the process of venture creation. While creation entrepreneurs may not initially view themselves as having any place in entrepreneurship, (or for that matter, even business at all), they nevertheless find themselves within those realms when they take their unique idea to market and iteratively try to make it succeed. Effectual entrepreneurs, in contrast, immediately view themselves as

entrepreneurs by taking inventory of their available means and crafting from those means a new alternative to take to the market. They leverage their relationships and obtain pre-commitments to increase their chances of success, and apply the affordable loss principle to fail quickly and cheaply (Sarasvathy, 2001; Chandler *et al.*, 2011; Fisher, 2012). Discovery entrepreneurs, in contrast to both creation and effectuation entrepreneurs, plan and choose from among alternatives based on expected return.

I have proposed the construct of entrepreneurial process orientation, and posited that greater fit between EPO and entrepreneurial process tasks leads to greater performance, thereby increasing an entrepreneur's chance of success. This provides an extension of fit literature, particularly in entrepreneurship, which has largely looked at limited cognitive factors to differentiate entrepreneurs from non-entrepreneurs, as well as some more narrow fit advantages between the entrepreneur and particular opportunity/venture. The construct of EPO offers new understanding for entrepreneurship theory as it seeks to bring to light the implications of different theoretical perspectives for ensuing approaches to entrepreneurial processes.

Implications for Research

Research in entrepreneurship has a fruitful future (Alvarez *et al.*, 2013). I add to that growth through presenting a challenge of building the new construct of entrepreneurial process orientation.

Researchers should be encouraged to use the EPO construct as a foundation for assembling studies that could incorporate other instruments such as the Myers-Briggs Type Indicator and the NEO Personality Inventory to identify characteristics that predict higher performance in particular types of entrepreneurial tasks.

Implications for Education

This research was initially conceptualized and subsequently strongly driven by its objective of improving entrepreneurship education. By entrepreneurship's strong focus on the discovery perspective of entrepreneurship (Sarasvathy, 2001), it has possibly exacerbated issues of lower venture formation rates by under-represented groups (Fabian & Ndofor, 2007), and thus can be improved by adding additional theoretical perspectives.

As fitting EPO with entrepreneurial process tasks serves as a valid predictor of increased odds of attaining profit within a very early timeline, i.e. 12 months, then at least some potential entrepreneurs are receiving a vastly incomplete education.

By learning to correctly categorize each entrepreneur before they engage in venture formation, educators can train them to better implement the necessary skill sets, thereby increasing the odds of early financial performance of their ventures. Indeed, as Alvarez *et al.* (2013) argued, the tool an entrepreneur uses depends on the context they face, which can differ within the same venture over the life of the organization. Thus, entrepreneurs should be educated across different theoretical perspectives to increase their chances at long-term success. This is consistent with identity literature, identity referring to the fluid sense an individual has of themselves, dependent on situation (Weick, 1995). Furthermore, EPO can assist entrepreneurs in forming complementary teams to assist in other aspects of their business to which their primary EPO is not as well suited, e.g. an EPO-Discoverer forming a partnership with an EPO-Effectuator to leverage existing resources in new and potentially fruitful ways. Particularly this may assist new ventures as they progress to maturity.

In particular, Nielsen & Lassen (2012) found that identity can be fluid in entrepreneurship, building off of the idea that setting can differ and thus an entrepreneur's

identity will differ alongside it. While Nielsen & Lassen focused their work on effectuation, one can naturally assume that the same likely holds true for the discovery and creation perspectives as well.

I conclude in summary that widening our understanding of the potential for entrepreneurial success of a greater variety of individuals, and in turn, designing pedagogies and programs tailored to these differences, are key initiatives for both increasing and improving outcomes in the entrepreneurship sector.

Conclusions and Future Research

I have proposed the new construct of entrepreneurial process orientation (EPO) with the goal of expanding our view of the process of entrepreneurship, providing researchers with a new construct to validate, and improving entrepreneurship education giving educators new tools to use, tailored to defined groups of entrepreneurship students. A key proposition was offered that entrepreneurs differ in their fit with different approaches to the entrepreneurial process, and this has implications for performance and inclusion of new and different types of entrepreneurs. The theoretical perspectives of discovery, creation, and effectuation were examined in light of possible EPO parameters. To study EPO, I used the PSED database as an initial litmus test. Now, I hope to add to the EPO other instruments and facets such as the Myers-Briggs Type Indicator, Five Factor Model of Personality, and NEO Personality Type to serve as additional methods towards profiling each EPO.

Additionally, in an experimental design, follow-up research could test whether self-identified EPOs are then associated with higher performance on tasks associated with the different entrepreneurial orientations. For instance, returning to Table 3, I would expect that the subsample highest on proactiveness and discovery perspective characteristics, associated with an

EPO–Discovery designation, would outperform their EPO-Creation and EPO-Effectuation peers in environmental analysis tasks. By grouping entrepreneurs into their EPO (herein typified by personality or other individual characteristics questions asked as part of the panel study of entrepreneurial dynamics study), and then fitting them with founding behaviors associated with their EPO approach, I found evidence to indicate that entrepreneurs would outperform their mismatched peers. I contend that this new construct and the ideas it encompasses, will serve a new generation of not only entrepreneurs, but those to whom they turn for guidance.

References

- Acs, Z.J., & Malecki, E.J. (2003). Entrepreneurship in rural America: The big picture. *Federal Reserve Bank of Kansas City*.
- Aghion, P. (2017). Entrepreneurship and growth: lessons from an intellectual journey. *Small Business Economics*, 48(1), 9-24.
- Aldenderfer, M.S., & Blashfield, R.K. (1984). Cluster Analysis Sage. *Thousand Oaks, CA*.
- Aldrich, H. E., & Fiol, C. M. (1994). Fools rush in? The institutional context of industry creation. *Academy of Management Review*, 19(4), 645-670.
- Aldrich, H.E., & Waldinger, R. (1990). Ethnicity and entrepreneurship. *Annual Review of Sociology*, 16(1), 111-135.
- Alsos, G.A., Clausen, T.H., & Solvoll, S. (2014). Towards a better measurement scale of causation and effectuation. In *Academy of Management Proceedings* (Vol. 2014, No. 1, p. 13785). Briarcliff Manor, NY 10510: Academy of Management.
- Alvarez, S.A., & Barney, J.B. (2007). Discovery and creation: Alternative theories of entrepreneurial action. *Strategic Entrepreneurship Journal*, 1(1-2), 11-26.
- Alvarez, S.A., Barney, J.B., & Anderson, P. (2013). Forming and exploiting opportunities: The implications of discovery and creation processes for entrepreneurial and organizational research. *Organization Science*, 24(1), 301-317.
- Alvarez, S.A., & Barney, J.B. (2019). Has the Concept of Opportunities Been Fruitful in the Field of Entrepreneurship? *Academy of Management Perspectives*, (ja).
- Amit, R., Muller, E., & Cockburn, I. (1995). Opportunity costs and entrepreneurial activity. *Journal of Business Venturing*, 10(2), 95-106.

- Arend, R.J., Sarooghi, H., & Burkemper, A. (2015). Effectuation as ineffectual? Applying the 3E theory-assessment framework to a proposed new theory of entrepreneurship. *Academy of Management Review*, 40(4), 630-651.
- Ardichvili, A., Cardozo, R., & Ray, S. (2003). A theory of entrepreneurial opportunity identification and development. *Journal of Business Venturing*, 18(1), 105-123.
- Audretsch, D., & Keilbach, M. (2004). Entrepreneurship capital and economic performance. *Regional Studies*, 38(8), 949-959.
- Azoulay, P., & Shane, S. (2001). Entrepreneurs, contracts, and the failure of young firms. *Management Science*, 47(3), 337-358.
- Baker, T., & Nelson, R.E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly*, 50(3), 329-366.
- Baron, R.A. (2008). The role of affect in the entrepreneurial process. *Academy of Management Review*, 33(2), 328-340.
- Birley, S. (1985). The role of networks in the entrepreneurial process. *Journal of Business Venturing*, 1(1), 107-117.
- Bolton, D.L., & Lane, M.D. (2012). Individual entrepreneurial orientation: Development of a measurement instrument. *Education+ Training*, 54(2/3), 219-233.
- Boyd, D.P., & Webb, R.J. (1982). The coronary costs of choosing a small business career. *American Journal of Small Business*, 6(4), 3-9.
- Brandstätter, H. (2011). Personality aspects of entrepreneurship: A look at five meta-analyses. *Personality and Individual Differences*, 51(3), 222-230.
- Brazeal, D.V., & Herbert, T.T. (1999). The genesis of entrepreneurship. *Entrepreneurship Theory and Practice*, 23(3), 29-46.

- Brigham, K.H., & De Castro, J.O. (2003). *Entrepreneurial fit: The role of cognitive misfit*. In *Cognitive approaches to entrepreneurship research* (pp. 37-71). Emerald Group Publishing Limited.
- Brigham, K.H., de Castro, J.O., & Shepherd, D. (2004). Mismatch between entrepreneurs and their firms: The role of cognitive fit/misfit. *Instituto de Empresa Business School Working Paper No. WP04-10*.
- Brigham, K.H., Mitchell, R.K., & De Castro, J.O. (2010). Cognitive misfit and firm growth in technology-oriented SMEs. *International Journal of Technology Management*, 52(1/2), 4-25.
- Brockhaus, R.H., & Nord, W.R. (1979, August). An Exploration of Factors Affecting the Entrepreneurial Decision: Personal Characteristic vs. Environmental Conditions. In *Academy of Management Proceedings* (Vol. 1979, No. 1, pp. 364-368). Briarcliff Manor, NY 10510: Academy of Management.
- Chandler, G.N., DeTienne, D.R., McKelvie, A., & Mumford, T.V. (2011). Causation and effectuation processes: A validation study. *Journal of Business Venturing*, 26(3), 375-390.
- Cardon, M.S., Wincent, J., Singh, J., & Drnovsek, M. (2009). The nature and experience of entrepreneurial passion. *Academy of Management Review*, 34(3), 511-532.
- Carland, J.W., Hoy, F., & Carland, J.A.C. (1988). "Who is an entrepreneur?" is a question worth asking. *American Journal of Small Business*, 12(4), 33-39.
- Carland, J.W., Hoy, F., Boulton, W.R., & Carland, J.A.C. (2007). Differentiating entrepreneurs from small business owners: A conceptualization. In *Entrepreneurship* (pp. 73-81). Springer, Berlin, Heidelberg.

- Chen, G., Gully, S.M., & Eden, D. (2004). General self-efficacy and self-esteem: Toward theoretical and empirical distinction between correlated self-evaluations. *Journal of Organizational Behavior*, 25(3), 375-395.
- Chiles, T.H., Bluedorn, A.C., & Gupta, V.K. (2007). Beyond creative destruction and entrepreneurial discovery: A radical Austrian approach to entrepreneurship. *Organization Studies*, 28(4), 467-493.
- Chrisman, J.J., Gatewood, E., & Donlevy, L.B. (2002). A note on the efficiency and effectiveness of outsider assistance programs in rural versus non-rural states. *Entrepreneurship Theory and Practice*, 26(3), 67-80.
- Clark, A.V., Atkinson-Palombo, C., & Garrick, N.W. (2019). The Rise and Fall of the Segway: Lessons for the Social Adoption of Future Transportation. *Transfers*, 9(2), 27-44.
- Cole, A.H. (1959). *Business enterprise and its social setting*. Cambridge. Harvard University Press.
- Cole, A.H. (1969). Definition of entrepreneurship. In *Karl A. Bostrom seminar in the study of enterprise. Milwaukee: Center for Venture Management* (pp. 10-22).
- Collins, O.F., & Moore, D.G. (1970). *The organization makers: A behavioral study of independent entrepreneurs*. Appleton-Century-Crofts.
- Cooper, A.C., & Dunkelberg, W.C. (1981). A new look at business entry: Experiences of 1805 entrepreneurs. *Frontiers of Entrepreneurship Research*, 1(1), 1-20.
- Corner, P.D., & Ho, M. (2010). How opportunities develop in social entrepreneurship. *Entrepreneurship Theory and Practice*, 34(4), 635-659.
- Covin, J.G., & Slevin, D.P. (1991). A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship Theory and Practice*, 16(1), 7-26.

- Curtin, Richard T., & Reynolds, Paul D. Panel Study of Entrepreneurial Dynamics, PSED II, United States, 2005-2011. Ann Arbor, MI: Inter-university Consortium for Political and Social Research, 2018-11-28. <https://doi.org/10.3886/ICPSR37202.v1>
- Dauids, L.E., & Bunting, J.W. (1963). *Characteristics of small business founders in Texas and Georgia*. University of Georgia.
- Davidson, E. The Average Time to Reach Profitability in a Start Up Company. Small Business - Chron.com, Chron.com, 9 Apr. 2019. Accessed 1/1/2020: <https://smallbusiness.chron.com/average-time-reach-profitability-start-up-company-2318.html>.
- Davidsson, P. (2015). Entrepreneurial opportunities and the entrepreneurship nexus: A re-conceptualization. *Journal of Business Venturing*, 30(5), 674-695.
- Davidsson, P., Recker, J., & von Briel, F. (2018). External enablement of new venture creation: A framework. *Academy of Management Perspectives*, (ja).
- De Bruin, A., Brush, C.G., & Welter, F. (2006). Introduction to the special issue: Towards building cumulative knowledge on women's entrepreneurship. *Entrepreneurship Theory and Practice*, 30(5), 585-593.
- De Bruin, A., Brush, C.G., & Welter, F. (2007). Advancing a framework for coherent research on women's entrepreneurship. *Entrepreneurship Theory and Practice*, 31(3), 323-339.
- Drabenstott, M., Novack, N., & Abraham, B. (2003). Main streets of tomorrow: Growing and financing rural entrepreneurs-a conference summary. *Economic Review-Federal Reserve Bank of Kansas City*, 88(3), 73-84.

- Draheim, K.P. (1972). Factors influencing the rate of formation of technical companies. In *Technical Entrepreneurship: a symposium, Milwaukee Centre for Venture Management* (pp. 3-27).
- Duening, T., Shepherd, M., & Czaplewski, A. (2012). How entrepreneurs think: Why effectuation and effectual logic may be the key to successful enterprise entrepreneurship. *International Journal of Innovation Science*.
- Dunne, T., Roberts, M.J., & Samuelson, L. (1988). Patterns of firm entry and exit in US manufacturing industries. *The RAND Journal of Economics*, 495-515.
- Durand, D. E. (1975). Effects of achievement motivation and skill training on the entrepreneurial behavior of black businessmen. *Organizational Behavior and Human Performance*, 14(1), 76-90.
- Eckhardt, J.T., & Shane, S.A. (2003). Opportunities and entrepreneurship. *Journal of Management*, 29(3), 333-349.
- Edelman, L., & Yli-Renko, H. (2010). The impact of environment and entrepreneurial perceptions on venture-creation efforts: Bridging the discovery and creation views of entrepreneurship. *Entrepreneurship Theory and Practice*, 34(5), 833-856.
- Edwards, J.R., & Cable, D.M. (2009). The value of value congruence. *Journal of Applied Psychology*, 94(3), 654.
- Edwards, J.R., Caplan, R.D., & Van Harrison, R. (1998). Person-environment fit theory. *Theories of Organizational Stress*, 28, 67.
- Ely, R.T. & Hess. R.H. (1937). *Outlines of economics* (L Med.). New York: MacMillan
- Eurostat (2013) Business demography statistics. European Commission. Frese, M., Brantjes, A., & Hoorn, R. (2002). Psychological success factors of small scale businesses in Namibia:

- The roles of strategy process, entrepreneurial orientation and the environment. *Journal of Developmental Entrepreneurship*, 7(3), 259-282.
- Fabian, F.H. and Ndofor. H. 2007. *The Context of Entrepreneurial Processes: One Size Doesn't Fit All*. In T. Lumpkin, and J. Katz (Eds.). *Advances in Entrepreneurship*, Volume 10:249-280. Firm Emergence and Growth, Elsevier/JAI.
- Fairlie, R.W., & Robb, A.M. (2008). Race and entrepreneurial success. *Cambridge, MA: The*.
- Fillis, I. (2000). Being creative at the marketing/entrepreneurship interface: lessons from the art industry. *Journal of Research in Marketing and Entrepreneurship*, 2(2), 125-137.
- Fauchart, E., & Gruber, M. (2011). Darwinians, communitarians, and missionaries: The role of founder identity in entrepreneurship. *Academy of Management Journal*, 54(5), 935-957.
- Fisher, G. (2012). Effectuation, causation, and bricolage: A behavioral comparison of emerging theories in entrepreneurship research. *Entrepreneurship Theory and Practice*, 36(5), 1019-1051.
- Foss, N., & Klein, P. (2018). Entrepreneurial Opportunities: Who Needs Them?. *Academy of Management Perspectives*, (ja).
- Gaglio, C.M., & Katz, J.A. (2001). The psychological basis of opportunity identification: Entrepreneurial alertness. *Small Business Economics*, 16(2), 95-111.
- Gartner, W.B. (1985). A conceptual framework for describing the phenomenon of new venture creation. *Academy of Management Review*, 10(4), 696-706.
- Gartner, W.B. (1988). "Who is an entrepreneur?" is the wrong question. *American Journal of Small Business*, 12(4), 11-32.

- Gupta, V.K., & Gupta, A. (2015). Relationship between entrepreneurial orientation and firm performance in large organizations over time. *Journal of International Entrepreneurship*, 13(1), 7-27.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (1998). *Multivariate data analysis* (Vol. 5, No. 3, pp. 207-219). Upper Saddle River, NJ: Prentice hall.
- Hartmann, H. (1959). Managers and entrepreneurs: a useful distinction?. *Administrative Science Quarterly*, 429-451.
- Hindle, K. (2010). Skillful dreaming: testing a general model of entrepreneurial process with a specific narrative of venture creation. *Entrepreneurial Narrative: Theory, Ethnomethodology and Reflexivity*, 1, 101-139.
- Hmieleski, K.M., Carr, J.C., & Baron, R.A. (2015). Integrating discovery and creation perspectives of entrepreneurial action: The relative roles of founding CEO human capital, social capital, and psychological capital in contexts of risk versus uncertainty. *Strategic Entrepreneurship Journal*, 9(4), 289-312.
- Hornaday, J.A., & Aboud, J. (1971). Characteristics of successful entrepreneurs 1. *Personnel Psychology*, 24(2), 141-153.
- Hornaday, J.A., & Bunker, C.S. (1970). The nature of the entrepreneur. *Personnel Psychology*, 23(1), 47-54.
- Howell, R. (1972). *Comparative profiles: entrepreneurs versus the hired executive*. In Technical entrepreneurship: A symposium A. Cooper and J. Komives. Milwaukee, WI, Centre for Venture Management.
- Hmieleski, K.M., Carr, J.C., & Baron, R.A. (2015). Integrating discovery and creation perspectives of entrepreneurial action: The relative roles of founding CEO human capital,

- social capital, and psychological capital in contexts of risk versus uncertainty. *Strategic Entrepreneurship Journal*, 9(4), 289-312.
- Hsu, D.K., Burmeister-Lamp, K., Simmons, S.A., Foo, M.D., Hong, M.C., & Pipes, J.D. (2019). "I know I can, but I don't fit": Perceived fit, self-efficacy, and entrepreneurial intention. *Journal of Business Venturing*.
- Hull, D. L., Bosley, J.J., & Udell, G.G. (1980). Renewing the hunt for the heffalump: identifying potential entrepreneurs by personality characteristics. *Journal of Small Business Management (pre-1986)*, 18(000001), 11.
- Jack, S.L., & Anderson, A.R. (2002). The effects of embeddedness on the entrepreneurial process. *Journal of business Venturing*, 17(5), 467-487.
- Jamal, M. (2007). Burnout and self-employment: a cross-cultural empirical study. *Stress and Health*, 23(4), 249-256.
- Jamal, M., & Badawi, J.A. (1995). Job stress and quality of working life of self-employed immigrants: A study in workforce diversity. *Journal of Small Business & Entrepreneurship*, 12(1), 55-63.
- Karlsson, C., & Dahlberg, R. (2003). Entrepreneurship, firm growth and regional development in the new economic geography: Introduction. *Small Business Economics*, 73-76.
- Katsikeas, C.S., Samiee, S., & Theodosiou, M. (2006). Strategy fit and performance consequences of international marketing standardization. *Strategic Management Journal*, 27(9), 867-890.
- Ketchen, D.J., & Shook, C.L. (1996). The application of cluster analysis in strategic management research: an analysis and critique. *Strategic Management Journal*, 17(6), 441-458.

- Ketokivi, M., & Schroeder, R. (2004). Manufacturing practices, strategic fit and performance. *International Journal of Operations & Production Management*.
- Kirzner, I.M. (2009). The alert and creative entrepreneur: a clarification. *Small Business Economics*, 32(2), 145-152.
- Knaup A.E. (2005) Survival and longevity in the business employment dynamics data. *Monthly Lab. Review* 128(59): 50–56.
- Knaup A.E. and Piazza M.C. (2007) Business employment dynamics data: Survival and longevity, II. *Monthly Lab. Review* 130(9): 3–10.
- Kollmann, T., Christofor, J., & Kuckertz, A. (2007). Explaining individual entrepreneurial orientation: Conceptualisation of a cross-cultural research framework. *International Journal of Entrepreneurship and Small Business*, 4(3), 325-340.
- Kristof, A.L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, 49(1), 1-49.
- Kristof-Brown, A.L., 2000. Perceived applicant fit: distinguishing between recruiters' perceptions of person–job and person–organization fit. *Personnel Psychology*, 53 (3), 643–671.
- Kristof-Brown, A.L., Barrick, M.R., Stevens, C.K., 2005. When opposites attract: a multi-sample demonstration of complementary person-team fit on extraversion. *Journal of Personality*, 73 (4), 935–958.
- Kristof-Brown, A.L., Zimmerman, R.D., & Johnson, E.C. 2005. Consequences of individuals' fit at work: A meta-analysis of person–job, person–organization, person–group, and person–supervisor fit. *Personnel Psychology*, 58 (2): 281–342.

- Lachman, R. (1980). Toward measurement of entrepreneurial tendencies. *Management International Review*, 108-116.
- Lachmann, L.M. (1977). *Capital, expectations, and the market process*. Kansas City.
- Lachmann, L.M. (1986). *The market as an economic process*. Wiley-Blackwell.
- Lanivich, S.E. (2011). Use the rich: Development and validation of the resource-induced coping heuristic inventory for entrepreneurship. *Frontiers of Entrepreneurship Research*, 31(6), 3.
- Lavington, F. (1922). An account of the causes producing rhythmic changes in the activity of business (Vol. 3). London: P. S. King.
- Leibenstein, H. (1968). Entrepreneurship and development. *The American Economic Review*, 58(2), 72-83.
- Liles, P. (1974). Who are the entrepreneurs? *MSU Business Topics*. 22. 5-14.
- Litzinger, W.D. (1965). The motel entrepreneur and the motel manager. *Academy of Management Journal*, 8(4), 268-281.
- Lumpkin, G.T., & Dess, G.G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135-172.
- Magnusson, M., Merenda, M., & Gittell, R. (2011). *The Sustainable Business Case Book*. Washington, D.C.: Saylor Foundation.
- Mainela, T., & Puhakka, V. (2009). Organising new business in a turbulent context: Opportunity discovery and effectuation for IJV development in transition markets. *Journal of International Entrepreneurship*, 7(2), 111.
- Mäkimurto-Koivumaa, S., & Puhakka, V. (2013). Effectuation and causation in entrepreneurship education. *International Journal of Entrepreneurial Venturing*, 5(1), 68-83.

- Markman, G.D., & Baron, R.A. (2003). Person–entrepreneurship fit: why some people are more successful as entrepreneurs than others. *Human Resource Management Review*, 13(2), 281-301.
- Mathias, B.D., & Williams, D.W. (2017). The impact of role identities on entrepreneurs' evaluation and selection of opportunities. *Journal of Management*, 43(3), 892-918.
- McClelland, D. (1961). *The achieving society*. Princeton, NJ: Van Nostrand.
- McGee, J.E., Peterson, M., Mueller, S.L., & Sequeira, J.M. (2009). Entrepreneurial self-efficacy: refining the measure. *Entrepreneurship Theory and Practice*, 33(4), 965-988.
- McGrath, R.G. (1999). Falling forward: Real options reasoning and entrepreneurial failure. *Academy of Management Review*, 24(1), 13-30.
- McMullen, J.S., & Shepherd, D.A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review*, 31(1), 132-152.
- Mengistae, T. (1999). *Indigenous ethnicity and entrepreneurial success in Africa: some evidence from Ethiopia*. The World Bank.
- Mescon, T.S., & Montanari, J.R. (1981, August). The Personalities of Independent and Franchise Entrepreneurs, An Empirical Analysis of Concepts. In *Academy of Management Proceedings* (Vol. 1981, No. 1, pp. 413-417). Briarcliff Manor, NY 10510: Academy of Management.
- Michael, S.C., & Combs, J.G. (2008). Entrepreneurial failure: The case of franchisees. *Journal of Small Business Management*, 46(1), 73-90.
- Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science*, 29(7), 770-791.

- Miller, R.J., Munoz, L., & Hurt, K.J. (2016). Complex start-ups: A thematic analysis in entrepreneur-opportunity fit concept. *Journal of Business & Entrepreneurship*, 28(1).
- Monk R. (2000) Why small businesses fail. *CMA Management* 74(6): 12–13.
- Morley, M., & Morley, M. J. (2007). Person-organization fit. *Journal of Managerial Psychology*.
- Mueller, P. (2006). Entrepreneurship in the region: breeding ground for nascent entrepreneurs? *Small Business Economics*, 27(1), 41-58.
- Neff, G., Wissinger, E., & Zukin, S. (2005). Entrepreneurial labor among cultural producers: “Cool” jobs in “hot” industries. *Social Semiotics*, 15(3), 307-334.
- Neill, S., Metcalf, L.E., & York, J.L. (2017). Distinguishing entrepreneurial approaches to opportunity perception. *International Journal of Entrepreneurial Behavior & Research*, 23(2), 296-316.
- Nelson, K. (2014). Student Motivational Profiles in an Introductory MIS Course: An Exploratory Cluster Analysis. *Research in Higher Education Journal*, 24.
- Nielsen, S.L., & Lassen, A.H. (2012). Identity in entrepreneurship effectuation theory: a supplementary framework. *International Entrepreneurship and Management Journal*, 8(3), 373-389.
- Norusis, M.J. (2012). *IBM SPSS statistics 19 advanced statistical procedures companion* (p. 444). Upper Saddle River, NJ: Prentice Hall.
- O’Brien, R.M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, 41(5), 673-690.
- Oosterbeek, H., Van Praag, M., & Ijsselstein, A. (2010). The impact of entrepreneurship education on entrepreneurship skills and motivation. *European Economic Review*, 54(3), 442-454.

- Palmer, M. (1971). The application of psychological testing to entrepreneurial potential. *California Management Review*, 13(3), 32-38.
- Randerson, K., DeGeorge, J.M., & Fayolle, A. (2016). Entrepreneurial opportunities: how do cognitive styles and logics of action fit in?. *International Journal of Entrepreneurship and Small Business*, 27(1), 19-39.s
- Rauch, A., & Frese, M. (2007). Born to be an entrepreneur? Revisiting the personality approach to entrepreneurship. *The Psychology of Entrepreneurship*, 41-65.
- Rauch, A., Wiklund, J., Lumpkin, G.T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, 33(3), 761-787.
- Read, S., Sarasvathy, S., Dew, N., & Wiltbank, R. (2016). *Effectual Entrepreneurship*. Routledge.
- Reynolds, P.D., & Curtin, R.T. (2008). Business creation in the United States: Panel study of entrepreneurial dynamics II initial assessment. *Foundations and Trends® in Entrepreneurship*, 4(3), 155-307.
- Reynolds, P.D. (2011). Informal and early formal financial support in the business creation process: Exploration with PSED II data set. *Journal of Small Business Management*, 49(1), 27-54.
- Rich, B.L., Lepine, J.A., & Crawford, E.R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of Management Journal*, 53(3), 617-635.
- Riedo, V., Kraiczy, N.D., & Hack, A. (2017). Applying Person-Environment Fit Theory to Identify Personality Differences between Prospective Social and Commercial

- Entrepreneurs: An Explorative Study. *Journal of Small Business Management*.
<https://doi.org/10.1111/jsbm.12377>.
- Rivlin, Gary. (2003). Segway's Breakdown. *Wired* 1 March 2003
- Robinson, P.B., Stimpson, D., Huefner, J. & Hunt, H. (1991) 'An attitude approach to the prediction of entrepreneurship', *Entrepreneurship Theory and Practice*, 15, (4): 13–31.
- Robinson, S. (2007). Business failure rates: A look at sex and location. *Academy of Entrepreneurship Journal*, 13(1), 45-56.
- Robinson, S., & Stubberud, H.A. (2014). Elements of entrepreneurial orientation and their relationship to entrepreneurial intent. *Journal of Entrepreneurship Education*, 17.
- Rundle-Thiele, S., Kubacki, K., Tkaczynski, A., & Parkinson, J. (2015). Using two-step cluster analysis to identify homogeneous physical activity groups. *Marketing Intelligence & Planning*, 33(4), 522-537.
- Sarasvathy, S.D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243-263.
- Sarasvathy, S.D. (2003). Entrepreneurship as a science of the artificial. *Journal of Economic Psychology*, 24(2), 203-220.
- Sarasvathy, S.D., Dew, N., Velamuri, S.R., & Venkataraman, S. (2003). *Three views of entrepreneurial opportunity*. In Handbook of Entrepreneurship Research (pp. 141-160). Springer, Boston, MA.
- Say, A. (1816). *A Treatise on Political Economy*. London: Sherwood, Neeley and Jones.
- Schneider, B. (1987). The people make the place. *Personnel Psychology*, 40(3), 437-453.
- Schumpeter, J.A. 1934. *The theory of economic development*. New Brunswick, NJ: Transaction.

- Semrau, T., & Sigmund, S. (2012). Networking ability and the financial performance of new ventures: a mediation analysis among younger and more mature firms. *Strategic Entrepreneurship Journal*, 6(4), 335-354.
- Serviere-Munoz, L., Hurt, K.J., & Miller, R. (2015). Revising the Entrepreneur Opportunity Fit Model: Addressing the Moderating Role of Cultural Fit and Prior Start-Up Experience. *Journal of Business and Entrepreneurship*, 27(1), 59.
- Shane, S.A. (2003). *A general theory of entrepreneurship: The Individual-opportunity Nexus*. Edward Elgar Publishing: Northampton, MA.
- Singer, N. Universities race to nurture start-up founders of the future. *The New York Times*, Dec. 28, 2015. Accessed 1/11/19:
<https://www.nytimes.com/2015/12/29/technology/universities-race-to-nurture-start-up-founders-of-the-future.html>.
- Singh, S., Corner, P., & Pavlovich, K. (2007). Coping with entrepreneurial failure. *Journal of Management & Organization*, 13(4), 331-344.
- Smith, A.W., Moghaddam, K., & Lanivich, S.E. (2016). A set-theoretic investigation into the origins of creation and discovery opportunities. *Strategic Entrepreneurship Journal*.
- Stauss, J. H. (1944). The entrepreneur: The firm. *Journal of Political Economy*, 52(2), 112-121.
- Stewart Jr, W.H., & Roth, P.L. (2001). Risk propensity differences between entrepreneurs and managers: A meta-analytic review. *Journal of Applied Psychology*, 86(1), 145.
- U.S. Small Business Administration, Office of Advocacy (2019). *Frequently Asked Questions*. Retrieved from <https://cdn.advocacy.sba.gov/wp-content/uploads/2019/09/24153946/Frequently-Asked-Questions-Small-Business-2019-1.pdf>.

- Van der Sluis, J., Van Praag, M., & Vijverberg, W. (2008). Education and entrepreneurship selection and performance: A review of the empirical literature. *Journal of Economic Surveys*, 22(5), 795-841.
- Van Praag, C.M. (2003). Business survival and success of young small business owners. *Small Business Economics*, 21(1), 1-17.
- Venkataraman, S. (1997). *The distinctive domain of entrepreneurship research* (Vol. 3, pp. 119-38).
- Vogel, R.M., Rodell, J.B., & Lynch, J.W. (2016). Engaged and productive misfits: How job crafting and leisure activity mitigate the negative effects of value incongruence. *Academy of Management Journal*, 59(5), 1561-1584.
- Wagener, S., Gorgievski, M., & Rijdsdijk, S. (2010). Businessman or host? Individual differences between entrepreneurs and small business owners in the hospitality industry. *The Service Industries Journal*, 30(9), 1513-1527.
- Wainer, H.A., & Rubin, I.M. (1969). Motivation of research and development entrepreneurs: Determinants of company success. *Journal of Applied Psychology*, 53(3p1), 178.
- Weber, Y. (1996). Corporate cultural fit and performance in mergers and acquisitions. *Human Relations*, 49(9), 1181-1202.
- Wei, S.J., & Zhang, X. (2011). *Sex ratios, entrepreneurship, and economic growth in the People's Republic of China* (No. w16800). National Bureau of Economic Research.
- Weick, K.E. (1995). *Sensemaking in organizations*. Vol 3. Sage Publications.
- Wiklund, J., & Shepherd, D. (2003). Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal*, 24(13), 1307-1314.

Zhao, H., Seibert, S.E., & Lumpkin, G.T. (2010). The relationship of personality to entrepreneurial intentions and performance: A meta-analytic review. *Journal of Management*, 36: 381-404.