

ENTREPRENEURIAL PASSION AND ENTREPRENEURIAL PERSISTENCE
WITHIN SMALL-SIZE COMPANIES

by

Xiaowen He

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Approved by:

Dr. Franz Kellermanns

Dr. Laura J. Stanley

Dr. Justin W. Webb

Dr. Chandrasekar Subramaniam

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ABSTRACT

XIAOWEN HE. Entrepreneurial Passion and Entrepreneurial Persistence within Small-size Companies

(Under the direction of DR. FRANZ KELLERMANN)

This dissertation explores the relationship between entrepreneurial passion and entrepreneurial persistence within small-size companies. Although prior literature has acknowledged that entrepreneurial passion enhances entrepreneurial persistence, a better understanding of the role of opportunity evaluation in this context is needed. Using data from 176 entrepreneurs, I suggest that gain estimation, loss estimation, and feasibility moderate the relationship between entrepreneurial passion and entrepreneurial persistence and that this relationship leads to the invention and development of new business opportunities. Implications for theory and practice as well as avenues for future research are discussed.

INDEX WORDS: Entrepreneurial passion, Entrepreneurial persistence, Opportunity evaluation

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Table of Content

LIST OF TABLES	vii
LIST OF FIGURES	viii
Chapter 1: Introduction	1
Chapter 2: Literature Review	6
2.1 Literature Search	6
2.2 Theory	6
2.3 Literature review	8
2.3.1 Entrepreneurial Passion.....	8
2.3.2 Entrepreneurial Persistence.....	24
2.3.3 Entrepreneurial Passion and Persistence.....	28
2.3.4 Opportunity Evaluation.....	31
2.4 Research Model and Hypotheses Development	33
2.4.1 Research Model.....	33
2.4.2 Hypotheses development	36
Chapter 3: Methodology	47
3.1 Overview	47
3.2 Survey instrument	47
3.2.1 Survey approach.....	48
3.3 Survey sample	49
3.4 Measures	49
3.4.1 Dependent Variable	49
3.4.2 Independent Variable	50
3.4.3 Moderator.....	51
3.4.4 Control Variable.....	53
3.5 Data analysis	55
Chapter 4: Results	57
4.1 Preliminary data analysis	57
4.2 Descriptive analysis and Correlation analysis	58
4.3 Regression result	61
4.4 Conclusion	66
Chapter 5: Conclusion	68
5.1 Overview	68
5.2 Research findings	68

5.3 Contribution	72
5.4 Limitations and Future Research	73
5.4.1 Limitations	73
5.4.2 Future Research	75
5.5 Conclusion	77
Appendix	91
Appendix A: Informed consent form	91
Appendix B: Entrepreneurial passion and persistence survey	93

LIST OF TABLES

Table 2.1.1 Research Foundation Article – Entrepreneurial Passion.....	21
Table 2.1.2 Research Foundation Article – Entrepreneurial Persistence.....	28
Table 2.1.3 Research Foundation Article – Entrepreneurial Passion & Persistence.....	30
Table 2.2 Construct definitions.....	32
Table 2.3 Hypotheses relationship.....	36
Table 3.1 Survey types.....	48
Table 3.2 Entrepreneurial persistence measure.....	50
Table 3.3 Measure of entrepreneurial passion for inventing.....	51
Table 3.4 Measure of entrepreneurial passion for developing.....	51
Table 3.5.1 Measure of opportunity evaluation (Gain Estimation)	52
Table 3.5.2 Measure of opportunity evaluation (Perceived Feasibility)	53
Table 3.5.3 Measure of opportunity evaluation (Loss Estimation).....	53
Table 3.6 Control Variables.....	55
Table 3.7 Measure of entrepreneurial passion for founding	55
Table 4.1 Descriptive Statistics and Bivariate Correction	59
Table 4.2 Regression Analysis.....	62
Table 4.3 Summary of findings.....	67

LIST OF FIGURES

Figure 2.1 Research Model	35
Figure 4.1 Entrepreneurial passion for inventing loss estimation and entrepreneurial persistence	65
Figure 4.2 Entrepreneurial passion for developing loss estimation and entrepreneurial persistence.....	66

Chapter 1: Introduction

Entrepreneurship is crucial to a firm's growth, specifically, to increasing production, improving innovation, and creating more opportunities (Audretsch, Keilbach, & Lehmann, 2006; Caliendo, Goethner, & Weißenberger, 2020). Entrepreneurship involves risk taking, uncertainty, creativity, leadership, and proactivity; in particular, it requires persistence and passion (Newman, Obschonka, Schwarz, Cohen, & Nielsen, 2019). As Austrian economists have pointed out, entrepreneurial action is the process of balancing customer needs and supply capacity to achieve a firm's financial goals (Kirzner, 1997). Persistence is a key element in entrepreneurial action to maintain ongoing firm growth in the face of uncertainty and difficulties (Cardon & Kirk, 2015; Wu & Dagher, 2007). Entrepreneurial innovation demands persistence in order to succeed (Drucker, 2014). Therefore, it is important that we understand the factors that impact entrepreneurial persistence.

Passion, which plays an important role in entrepreneurship, has received a great deal of scholarly attention (Newman et al., 2019; Pollack, Ho, O'Boyle, & Kirkman, 2020) in the effort to explain various entrepreneurial behaviors (Cardon, Wincent, Singh, & Drnovsek, 2009b). Entrepreneurial passion has been defined as "consciously accessible intense positive feelings and results from engagement in entrepreneurial activities associated with meaningful roles for the self-identity of the entrepreneur" (Cardon et al. 2009, p. 517). Entrepreneurial passion, with its positive and intense feelings, brings about those activities and actions that lead to venture success. Cardon, Wincent, Singh, and Drnovsek (2005) described entrepreneurial passion as the strongest emotion that entrepreneurs possess to engage in their daily activities (Cardon, Wincent, Singh, & Drnovsek, 2005; Vallerand, Houlfort, & Fores, 2003). Different entrepreneurial

activities such as inventing, founding, and developing a business involve various levels of entrepreneurial passion (Breugst, Domurath, Patzelt, & Klaukien, 2012). This passion, which is related to goal-directed cognitions and behaviors, drives persistence and leads to creative problem solving and absorption in tasks (Cardon & Stevens, 2009).

Entrepreneurial persistence is considered as a key factor in determining whether a venture succeeds (Cardon & Kirk, 2015). Persistence, defined as a behavior directed at achieving a certain goal over a period of time (Kanfer, 1990), has also been considered as an effort to endure while the entrepreneur works to reach their goals (Wu & Dagher, 2007). Markman et al. (2005) defined perseverance as “one’s tendency to persist and endure in the face of adversity” (Markman, Baron, & Balkin, 2005) p. 4). Cardon and Kirk (2015) have suggested that entrepreneurial passion invokes positive intense feelings and strong identifications, which lead to greater entrepreneurial persistence (Houser-Marko & Sheldon, 2006). Entrepreneurs who possess these qualities tend to persist in working toward their goals.

Prior literature has acknowledged that entrepreneurial passion enhances entrepreneurial persistence (Suvittawat, 2019). Although research has expanded our understanding of this phenomenon (Breugst et al., 2012; Xia, Han, & Zhang, 2020), much less is known of the underlying process through which entrepreneurial passion leads to entrepreneurial persistence. Studies have highlighted that motivators such as goals and self-efficacy have direct effects on venture growth and that these factors mediate the effects of passion on subsequent growth (Baum & Locke, 2004). Although most entrepreneurship literature demonstrates that entrepreneurial passion drives entrepreneurial efforts, Gielnik, Spitzmuller, Schmitt, Klemann, and Frese (2015) proposed that the reverse effect is also true (Gielnik, Spitzmuller, Schmitt, Klemann, & Frese, 2015). While entrepreneurial passion involves positive intense feelings and

strong identification with the activities that result from such feelings (Cardon & Stevens, 2009), entrepreneurial persistence is seen as resulting from both positive feelings and identification (Houser-Marko & Sheldon, 2006). Hence, in this dissertation I will argue the more established relationship, that of passion to persistence (Suvittawat, 2019; Xia et al., 2020).

Last, opportunity evaluation is a crucial step in the entrepreneurial process and results in a judgment that determines an individual's actions in the entrepreneurial process (Scheaf, Loignon, Webb, Heggstad, & Wood, 2020). Opportunity evaluation is essentially a cognitive phenomenon (Keh, Der Foo, & Lim, 2002). Scheaf, Loignon, Webb, Heggstad, and Wood (2020) proposed that opportunity evaluation consists of three core judgment criteria: gain estimation, loss estimation, and perceived feasibility. Gain estimation is the individual assessment of potential profits gained from the opportunity, while loss estimation is the assessment of potential loss of the opportunity. Perceived feasibility is the entrepreneur's assessment of interests and actions to transform the idea into the actual product or service (Scheaf et al., 2020). According to recent literature, positive emotions influence opportunity evaluation positively (Grichnik, Smeja, & Welp, 2010). Entrepreneurial passion, experienced as intensely positive feelings, is associated with opportunity evaluation.

I considered the three core judgment criteria (gain estimation, loss estimation, and perceived feasibility) as moderators of the relationship between entrepreneurial passion and persistence. Based on survey research, I examined how these factors moderated the relationship between my independent and dependent variables by drawing on social cognitive theory, as developed by Bandura (1986, 2012). This theory was expanded from social learning theory and provides a framework for understanding and predicting human behavior. Self-efficacy, the core of social cognitive theory, states that the beliefs people hold can determine how well they

persist, execute plans, and take actions (Bandura, 1986). I used social cognitive theory as a framework to explain the relationship between entrepreneurial passion and persistence, as researchers have done over the past 20 years (Baum & Locke, 2004; Biraglia & Kadile, 2017; Gielnik et al., 2015; Li et al., 2020).

This dissertation contributes to the literature on entrepreneurial passion and persistence in three ways. First, prior research has suggested that entrepreneurial passion drives entrepreneurial persistence (Cardon, Haynie, & Murnieks, 2012b), however, the process through which entrepreneurial passion influences entrepreneurial persistence remain unclear. This paper sheds light on how entrepreneurial passion transfers to entrepreneurial persistence. Entrepreneurs need to be passionate so they can overcome obstacles in entrepreneurship and persist in inventing new opportunities and developing a business. I posit that entrepreneurial passion has a positive impact on entrepreneurial persistence. Second, I connect role-based entrepreneurial passions, including those for inventing and developing, with entrepreneurial persistence. Previous findings regarding entrepreneurial passion and entrepreneurial behaviors have been inconsistent (Newman, Obschonka, Moeller, & Chandan, 2021). On the one hand, Cardon and Kirk (2015) showed evidence that entrepreneurial passions for inventing and founding were associated with entrepreneurial persistence; however, entrepreneurial passion for developing was not. On the other hand, Cardon et al. (2013) suggested that entrepreneurial passion for inventing was not related to entrepreneurial persistence but founding and developing were related. I examined how different passion constructs impact the relationship of entrepreneurial passion to persistence and posit that entrepreneurial passions for developing and inventing positively impact entrepreneurial passion to entrepreneurial persistence. Third, I seek to contribute to the growing body of work on the entrepreneurial process and what occurs in the middle; that is, how opportunity evaluation

moderates the passion to persistence relationship. What factor do entrepreneurs use to evaluate an opportunity? How do those factors impact entrepreneurial passion to persistence individually? From the practitioner perspective, the study helps entrepreneurs to consider the potential risks – “what could be” -- and determine the right direction. I hope to fill the gap in the literature regarding the moderating impact of opportunity evaluation on the relationship between entrepreneurial passion and persistence.

Chapter one introduces the main idea of the dissertation. It presents a statement of purpose, identifies gaps in the prior literature, and lists intended contributions. Chapter two reviews the prior literature that discusses entrepreneurial passion and persistence and acknowledges that entrepreneurial passion enhances entrepreneurial persistence. It also develops the theoretical model and offers hypotheses. Chapter three outlines the methodologies including survey, sample, measures, and data analytics. Chapter four discusses the results. Chapter five discusses the findings, reviews the contributions, and outlines the limitations and future research opportunities.

Chapter 2: Literature Review

This chapter provides a comprehensive review of the existing literature in three sections. The first section consists of a general overview of social cognitive theory. The second section reviews and summarizes the existing literature that explains entrepreneurial passion and persistence as well as opportunity evaluation in entrepreneurship and identifies gaps in the current literature. The third section presents my research model and development of hypotheses based on these gaps by integrating social cognitive theory.

2.1 Literature Search

I searched electronic databases such as Google Scholar and the J. Murrey Atkins Library as well as ABI/INFORM using search terms such as entrepreneurial passion, entrepreneurial persistence, and opportunity evaluation. This search yielded thirty articles (from 2000 to 2021), which were reviewed to determine appropriateness for inclusion. Table 2.1.1, Table 2.1.2, and Table 2.1.3 provide a list of the journals and authors of these articles.

The articles were published in mainstream management journals, such as *Academy of Management Journal*, *Academy of Management Review*, *Journal of Management*, *Entrepreneurship Theory and Practice*, *Journal of Personality and Social Psychology*, and *Journal of Small Business Management*. I divided the articles into three tables: entrepreneurial passion, entrepreneurial persistence, and entrepreneurial passion and persistence. The tables are ordered by year and alphabetically if they are in the same year.

2.2 Theory

Seven articles were grounded in social cognitive theory. Social cognitive theory, as developed by **Albert Bandura**, is the belief that learning is affected by people, behavior, and environment and represents a triadic reciprocal causation (Bandura, 1986). It is often used as a theoretical framework for understanding entrepreneurial motivations. Entrepreneurs set up their goals to motivate their behaviors and achieve their expectations (Bandura, 1986). Social cognitive theory is the foundation for studying entrepreneurial intentions affected by personal cognitive and environmental factors together (Bacq, Hartog, & Hoogendoorn, 2016; Wood & Bandura, 1989). The relationship between entrepreneurial passion and persistence is the relationship between motivation and behavior. By combining behavior, motivation, and an environmental perspective, the theory attempts to explain human actions and the results. Meanwhile, entrepreneurial cognitions are defined as “. . . the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth” (Mitchell et al., 2002, p. 97). Therefore, I have chosen to use social cognitive theory as my framework, which provides the connection and theoretical ground for the independent variable, entrepreneurial passion, dependent variable, entrepreneurial persistence, and moderator opportunity evaluation in my dissertation.

Self-efficacy motivates entrepreneurs to accomplish their goals and achieve success. It is the core component of social cognitive theory (Baum & Locke, 2004; Li et al., 2020) and is an entrepreneurial motivator, similar to passion. Hence, the relationship of self-efficacy to persistence should be similar to that of entrepreneurial passion to persistence. Mark and Baron (2003) used social cognitive theory to argue that entrepreneurs with higher self-efficacy outperformed those with lower self-efficacy. Similarly, Li et al. (2020) examined the relationship between entrepreneurial passion and entrepreneurial self-efficacy. Entrepreneurs

create goals and make efforts to achieve those goals. Gielnik et al. (2015) drew on goal-setting theory and social cognitive theory to argue that entrepreneurial efforts influence positive changes in the positive emotion of entrepreneurial passion. They suggested that setting a goal is necessary before the positive emotion of entrepreneurial passion can be experienced (Locke & Latham, 2002).

Biraglia and Kadile (2017) applied social cognitive theory as a framework to investigate the role of entrepreneurial passion and creativity as antecedents of entrepreneurial intentions (Biraglia & Kadile, 2017). Bao et al. (2017) examined the relationship among entrepreneurial passion, opportunity recognition, and entrepreneurial behaviors. The authors drew on social cognitive theory and explored how opportunity recognition, as a cognitive process, impacts the relationship. The findings demonstrated that entrepreneurs are more likely to recognize opportunities and start new ventures (Bao, Zhou, & Chen, 2017). Newman et al. (2019) argued that social cognitive theory is the theoretical foundation of entrepreneurial self-efficacy and drew upon it to explain the role of entrepreneurial self-efficacy in entrepreneurship (Newman et al., 2019). This supports my choice of social cognitive theory as the appropriate framework for my study.

2.3 Literature review

2.3.1 Entrepreneurial Passion

Passion is associated with love. Social psychologists have defined passion as a motivation that interacts with affection, cognition, and behaviors (Chen, Yao, & Kotha, 2009). Scholars have defined entrepreneurial passion in a number of different ways. The most popular one is the one that used by Cardon and colleagues (Cardon, 2008; Cardon, Gregoire, Stevens, &

Patel, 2013; Cardon et al., 2009b). Cardon et al. (2009) defined entrepreneurial passion as “consciously accessible intense positive feelings and results from engagement in entrepreneurial activities associated with meaningful roles for the self-identity of the entrepreneur” (Cardon et al. 2009, p. 517). Entrepreneurs show positive feelings toward certain opportunities or activities that will bring potential profit for their ventures and take actions to pursue those opportunities (Cardon et al., 2013). Moreover, entrepreneurial passion has its multifaceted nature and three distinct entrepreneurial identities relating to various entrepreneurial aspects of the entrepreneurial process, which includes inventor, founder and developer (Karimi, 2020). The first entrepreneurial identity, inventor, who identifies, invents and explores the potential new opportunities. Entrepreneurial passion for inventing involves the activities that look for new market opportunities, develop new product and service and thereafter, work with the new ideas (Cardon, Sudek, & Mitteness, 2009a). Founder is the second identity and is passionate about creating the firm and making it into business after identifying the opportunities. Entrepreneurial passion for founding is associated with the behavior of getting the needed resources financially, socially and human capital to create a new business (Cardon et al., 2009a). The third is developer, who engages in developing, operating and expanding the business. After founding stage, entrepreneurs make efforts on the growth and expansion of the venture. In my study, as I focus on small sized business, and there won't have enough sample for founding, therefore, I will only use passion for inventing and developing in my dissertation and include passion for founding as the control variables. My research focuses on the establishment of new ventures and entrepreneurial persistence of business.

Entrepreneurial Role Identities

In order to understand the nature of entrepreneurial passion in depth, Cardon et al. (2009) conceptualized entrepreneurial role identities as central to its nature. They broke down the notion of an abstract entrepreneurial identity (Murnieks & Mosakowski, 2006) into three specific role identities: inventor (opportunity recognition), founder (venture creation), and developer (venture growth) (Cardon et al., 2009b). As these roles have distinct characteristics, the differences lead to different entrepreneurial outcomes. Entrepreneurial passion for inventing involves looking for new market opportunities, developing new products and services, and generating new ideas (Cardon et al., 2009a). Entrepreneurial passion for founding is associated with obtaining the financial resources and the social and human capital necessary to create a new business (Cardon et al., 2009a). In the developer stage, entrepreneurs make efforts to grow and expand the venture. The benefit of the identity-based approach is its flexibility and ability to explain certain entrepreneurial behaviors that cannot be explained by other theories. For example, some entrepreneurs experience high passion for opportunity recognition; however, once the venture starts running smoothly, they lose passion and start looking for other opportunities. The sample size did not support the examination of founding; therefore, I used only passion for inventing and developing and included passion for founding as a control variable.

Collewaert et al. (2016) examined how entrepreneurial passion for founding fades away and why. They proposed that founding identity centrality stays stable in the founding stage of a venture's life cycle; however, based on the sample and time period, entrepreneurs' intense positive feelings for founding disappeared over time. Their examination confirmed that entrepreneurs will have more intense positive feelings for founding when they are able to change venture ideas or constantly look for feedback (Collewaert, Anseel, Crommelinck, De

Beuckelaer, & Vermeire, 2016). The theoretical implication of this finding, that founding identity centrality stays unchanged whereas intense positive feelings for founding fade away, has been confirmed and appears in entrepreneurial passion literature. It is vital that both entrepreneurial passion dimensions (i.e., intense positive feelings and identity centrality) are considered in order for us to understand completely the evolution of entrepreneurial passion.

Building on the model of Cardon et al. (2009), Cardon et al. (2013) further clarified the nature of entrepreneurial passion, its dimensions (feelings and identity centrality), and its domains (inventing, founding, and developing). This advanced model emphasized the often-overlooked dimension of identity centrality. The authors also proposed that the relationship between entrepreneurial passion and relevant outcomes differs depending on the different identities. From a methodology perspective, the literature developed and validated a set of measures for measuring entrepreneurial passion in different domains, as opposed to previous literature that relied on generalized measures of passion.

Murnieks et al. (2014) continued in this vein and investigated which specific aspects of identity are relevant and how they might influence the development and experience of entrepreneurial passion. Their results revealed that entrepreneurial identity plays an important role in fueling entrepreneurs' passion. Those entrepreneurs who considered their entrepreneurial identity as a closely held trait have a higher level of entrepreneurial passion (Murnieks, Mosakowski, & Cardon, 2014). At the same time, the authors determined that identity centrality is strongly connected with entrepreneurial passion, in line with previous literature (for example, (Cardon et al., 2009b); that is, entrepreneurial passion is highly correlated with entrepreneurial behavior.

Vallerand et al. (2003) proposed two types of entrepreneurial passion: obsessive and harmonious. “Obsessive passion (OP) refers to a controlled internalization of an activity in one’s identity that creates an internal pressure to engage in the activity that the person likes. Harmonious passion (HP) refers to an autonomous internalization that leads individuals to choose to engage in the activity that they like” (Vallerand, Blanchard, et al., 2003, p. 756). Results documented that both OP and HP are highly correlated with those activities that entrepreneurs have passion for and to which they commit time and effort. The correlation between OP and perception of the activities is higher than that of HP with perception of the activities because OP represents more of the person’s identity compared to HP. This explains another finding that OP is highly correlated with level of conflict between the activities and other perspectives of the person’s life.

In their meta-analysis, Pollack et al. (2020) examined work-related outcomes of different work passion categories (i.e., general, dualistic, and role-based (role-based consisting of inventing, founding, and developing)). General passion was defined as individuals’ love for work (Baum & Locke, 2004). Further to general work passion, identity was incorporated into work passion, which contained two categories, i.e., dualistic passion and role-based passion (Cardon & Stevens, 2009; Vallerand et al., 2003). As a result, Pollack et al. (2020) confirmed that general passion had a positive relationship with venture performance, while prior literature had not found that relationship (Baum & Locke, 2004). In terms of dualistic passion, HP and OP were confirmed as positively correlated; however, context factors of when and how they are associated should be considered. Role-based passion was positively related to outcomes across the three roles of inventing, founding, and developing (Pollack et al., 2020).

Breugst et. al. (2012) researched on perception of entrepreneurial passion and employee commitment to entrepreneurial venture. Building on the theory of emotion contagion (Platow et al., 2005), the study revealed different influences that different types of entrepreneurial passions on employees' positive affect at work, and therefore, impacting their commitment to entrepreneurial ventures. The result showed that both perceived passion for inventing and developing positively influence employees' positive affect at work, however, perceived passion for founding has a negative impact on employees' positive affect and their affective commitment.

Entrepreneurial passion among entrepreneurs and employees

Cardon (2008) studied how entrepreneurs transfer entrepreneurial passion to employees and concluded that employee emotions are highly relevant and that employee passion is linked to their experience and positive/negative feelings associated with the venture (Cardon, 2008). This finding makes an important contribution since it stresses that entrepreneurs consider employee emotions and attempt to transfer their entrepreneurial passion to employees. In the practical world, the ability of leaders to influence others' emotions can strongly impact a venture's performance and success.

Relevant to Cardon (2008), Breugst et. al. (2012) researched perceptions of entrepreneurial passion and employee commitment to the entrepreneurial venture. Building on the theory of emotion contagion (Platow et al., 2005), the study indicated that perceptions of entrepreneurs' passion for inventing, founding, and developing a venture can have different influences on employees' positive affect at work and impact their commitment. While perceived passion for inventing positively influenced employees' positive affect at work and, consequently, employees' affective commitment, perceived passion for founding had a negative

impact on employees' positive affect and their affective commitment. The study drew on goal-setting theory (Colbert & Witt, 2009) and concluded that perceived passion for developing had a positive influence on employees' positive affect and goal clarity, with an indirect positive effect on their commitment. The analysis also suggested that employees' positive affect at work was a more important mediator of the perceived passion–commitment relationship than goal clarity (which mediated only the effect of passion for developing).

Entrepreneurial passion measurement

Cardon et al. (2013) explained the nature of entrepreneurial passion and its relevant dimensions (feeling and identity centrality) and domains (entrepreneurial passion for inventing, founding, and developing) at a theoretical level. The first measurement captures the experience of intense positive feelings. The second conceptual requirement for measuring entrepreneurial passion is the centrality of these activities to entrepreneurs' self-identity. This has an important theoretical meaning as entrepreneurial passion may be little more than a context-specific positive affect without an identity centrality role (Cardon et al., 2013). The third measurement of entrepreneurial passion involves inventing new products or services, founding new organizations, and developing these organizations after their initial survival and success.

Entrepreneurial passion and entrepreneurial intention

Entrepreneurial passion has been identified as an antecedent of entrepreneurial intention (Cardon et al., 2005, 2009b; Shane, Locke, & Collins, 2003) along with other antecedents, including entrepreneurship education (Bae, Qian, Miao, & Fiet, 2014; Souitaris, Zerbinati, & Al-Laham, 2007), cognition in the opportunity recognition process (Teng, 2007), and creativity

(Vesalainen & Pihkala, 1997). Based on Bandura's (1986, 2012) social cognitive theory, Biraglia and Kadile (2017) investigated the role of entrepreneurial passion and creativity as antecedents of entrepreneurial intentions and demonstrated that entrepreneurial passion positively impacts entrepreneurial intention (Biraglia & Kadile, 2017). This confirms the argument that having passion for entrepreneurial founding activities will likely motivate entrepreneurs to establish a business. The article also argued that creativity has a similar relationship to entrepreneurial passion as with intention; that is, when individuals perceive themselves as creative, they will transfer their general passion into entrepreneurial intention and develop a new venture. The study also found that entrepreneurial self-efficacy mediated the relationship between entrepreneurial passion, creativity, and intention.

Entrepreneurial passion as an entrepreneurial central characteristic affects entrepreneurial behaviors in various ways (Karimi, 2020). Entrepreneurial intention is an individual's intention to choose to be an entrepreneur and start a new venture instead of working in an existing firm (Biraglia & Kadile, 2017). The study demonstrated that there was a strong connection between entrepreneurial passion and entrepreneurial intention and that the antecedents of intention, including attitudes toward entrepreneurship and perceived behavioral control, mediated the relationship. This finding further confirms the important role of entrepreneurial passion in entrepreneurship.

A practical benefit of the finding is for academics to consider entrepreneurial passion in the design of university education programs, with an emphasis on emotional aspects (Karimi, 2020). Following Karimi's (2020) finding that entrepreneurial passion had a positive impact on entrepreneurial intention, Syed et al. (2020) examined the mediating role of innovativeness and the moderating role of curiosity in the relationship between entrepreneurial passion and

entrepreneurial intention using a student sample. They found that innovativeness partially mediated the relationship between passion and intention and that the mediating effect was much higher for those entrepreneurs with higher curiosity scores (Syed, Butler, Smith, & Cao, 2020). Although the result provided several promising directions in entrepreneurship literature, the data sample was limited. A more general population sample will help validate future research.

Li et al. (2020) studied the relationship of entrepreneurial passion, entrepreneurial alertness, and entrepreneurial self-efficacy to entrepreneurial intention and entrepreneurial behavior and confirmed the positive and significant influence of entrepreneurial passion with all other indicators. Specifically, entrepreneurial passion positively influenced entrepreneurial intention for the student who desired to become an entrepreneur, which is consistent with prior findings (Cardon et al., 2009b; Karimi, 2020; Murnieks et al., 2014). Li et al. (2020) also found that entrepreneurial passion strongly impacted entrepreneurial alertness, which is in agreement with prior research (Cardon et al., 2005), and that entrepreneurial passion positively influenced entrepreneurial self-efficacy. Others had reached the same conclusion as well (Biraglia & Kadile, 2017; Cardon & Kirk, 2015). According to extant research, entrepreneurial passion impacts entrepreneurial behavior (Vallerand et al., 2007). Scholars are attempting to understand the factors that stimulate entrepreneurial passion so they can further investigate how this motivational force emerges and develops.

Entrepreneurial passion and its impact on entrepreneurship

Markman and Baron (2003) focused their research on person-entrepreneurship fit and found that those entrepreneurs who have close personal characteristics and the requirements of being an entrepreneur are usually successful in business (Markman & Baron, 2003). This supports the conclusion that entrepreneurs who possess the distinct personal characteristics

relevant to entrepreneurship and can easily be trained based on the situation will likely be more successful. Person-entrepreneurship fit has important implications for human resource management, as researchers have found that, given the same or a comparable situation, not all individuals can perform equally at the same level in recognizing opportunities and successfully creating a new venture, even if they possess the same knowledge, skills, and resources.

Previous research in applied psychology and social psychology has found that entrepreneurial passion has a strong direct effect on venture growth (Bandura, 1997; Baum, Locke, & Kirkpatrick, 1998; Locke & Latham, 1990). Based on data from Baum and Locke (2001) and follow-up data compared with the previous two-year period to the proposed model of entrepreneurship, Baum and Locke (2004) found that goals, self-efficacy, and communicated vision had direct or indirect effects on venture growth for a period of six years and that these factors mediated the effects of entrepreneurs' traits, skills, and motivation on venture growth (Baum & Locke, 2004).

Murnieks et al. (2020) contributed to the understanding of the relationship between motivation and behavior, i.e., how motivation drives behavior in the start-up, venture growth, and business exit phases. Prior research was conducted based on a single stage of the business process, an approach that examined how an individual's motivation interacted with behavior and provided more insight into why entrepreneurs act in certain ways. However, Ployhart (2008) argued that "Frankly, for most real-world problems, who cares about motivation at a single point in time?" (p. 54). Entrepreneurs' motivation changes throughout the individual business process (inventing, founding, and developing). After reviewing the relevant literature, the authors concluded that entrepreneurial motivation impacts entrepreneurial behavior in the start-up, venture growth, and business exit phases (Murnieks, Klotz, & Shepherd, 2020).

The extant literature has studied the factors that influence firm-level strategies of various micro-level characteristics of entrepreneurs. Traditionally, scholars have agreed that entrepreneurial decision making plays an influential role in cognitive world (Alvarez & Busenitz, 2001). Entrepreneurial emotions, such as passion, are hot topics and are key elements that impact firm-level strategies (Cardon, Foo, Shepherd, & Wiklund, 2012a). Luu and Nguyen (2020) investigated how entrepreneurial passion interacted with two types of innovation strategies (Kollmann & Stöckmann, 2014; Mueller, Rosenbusch, & Bausch, 2013) and confirmed that micro-level characteristics of entrepreneurs impacted firm-level strategies and activities. The authors' review of how entrepreneurial passion and social identity impacted firm-level strategies has enriched the understanding of the role of entrepreneurs' social identity. Based on the literature, Darwinian social identity negatively influenced the relationship between entrepreneurial passion and exploitative innovation strategies (Luu & Nguyen, 2020). On the other hand, the authors demonstrated that communitarian social identity moderated the link between entrepreneurial passion and exploitative innovation strategies and that a negative moderating impact of missionary social identity existed on the relationship between entrepreneurial passion and exploratory innovation strategies.

Bao et al. (2017) examined how opportunity recognition was associated with the entrepreneurial passion and entrepreneurial behavior relationship. Using data from China, the authors concluded that both dimensions (intense positive feelings and identity centrality) of entrepreneurial passion were positively correlated with opportunity recognition as well as with entrepreneurial behavior, with opportunity recognition partially mediating the relationship between passion and behavior (Bao et al., 2017). The study focused on a more specific cognition of opportunity recognition, which is the ability that stimulates entrepreneurs to pursue

an opportunity and transform it into a start-up venture. This supports others who have found that entrepreneurial passion is a vital factor in entrepreneurship (Cardon et al., 2009b).

Some scholars have explored how entrepreneurial passion and entrepreneurial alertness moderate the relationship between entrepreneurs' social networks and opportunity identification. Entrepreneurs' social networks are defined as the personal relationship or network they build with their business partners or government (business ties and political ties) (Peng & Luo, 2000). The paper demonstrated that both business ties and political ties positively influenced opportunity identification (Ma et al., 2020), which is inconsistent with existing literature (Li, Chen, Liu, & Peng, 2014; Stam, Arzlanian, & Elfring, 2014). Entrepreneurial passion negatively impacted the relationship between business ties and opportunity identification, perhaps because entrepreneurial passion impacted entrepreneurs' opportunity identification from an emotional (Mittens, Sudek, & Cardon, 2012) rather than a business perspective. The article also suggested that entrepreneurial alertness moderated the relationship between business ties and opportunity identification. However, an effect on the relationship between political ties and opportunity identification was not found, perhaps because information provided by government was usually unique and profitable and was not obtainable in the regular business environment.

In a comprehensive review, Newman et al. (2021) documented how the "first generation" of research on entrepreneurial passion has developed in academia and gained enormous attention in various entrepreneurial passion fields. The study also suggested a research agenda of "second generation" entrepreneurship subjects as well as gaps that could be examined in the near future (Newman et al., 2021), specifically, focusing more on a single facet to deepen our knowledge in regard to specific roles.

My dissertation focuses on the establishment of a business and persistence in developing the business. Therefore, I used entrepreneurial passion for inventing and developing as independent variables and examined how they correlated with entrepreneurial persistence. Prior literature has suggested that both entrepreneurial passion for inventing and developing have a positive impact on employees' affect and commitment to entrepreneurial ventures (Breugst et al., 2012). The entrepreneurial passion paths for inventing and developing are more affective than the cognitive path, which supports the statement that entrepreneurial passion (and employees' perception of passion) is mainly affective (Cardon, 2008).

Table 2.1.1 summarizes the journal findings for entrepreneurial passion.

Table 2.1.1 Research Foundation Article – Entrepreneurial Passion

Author	Year	Journal	Theory	Key findings
Markman, G. D., & Baron, R. A.	2003	Human Resource Management Review	Social cognitive theory	Individuals possessing entrepreneurial personal characteristics such as attitude, knowledge, skills, and abilities are more likely to be successful entrepreneurs.
Vallerand, R. J., Blanchard, C., Mageau, G. A., Koestner, R., Ratelle, C., Léonard, M., Marsolais, J.	2003	Journal of Personality and Social Psychology	Self-determination theory	Two types of passion are proposed: obsessive and harmonious.
Baum, J. R., & Locke, E. A.	2004	Journal of Applied Psychology	Social cognitive theory; goal setting? theory	Entrepreneurial traits and skills impact firm performance.
Cardon, M. S.	2008	Human Resource Management Review		The article discusses how entrepreneurs pass their own passion to employees.
Cardon, M. S., Wincent, J., Singh, J., & Drnovsek, M.	2009	Academy of Management Review	Identity theory; affect control theory; self-regulation theory; broaden-and-build theory	The paper conceptualizes the nature of entrepreneurial passion and proposes entrepreneurial passion as one of the meaningful roles that are salient to the self-identify of the entrepreneur.
Chen, X.-P., Yao, X., & Kotha, S.	2009	Academy of Management Journal		Preparedness, not passion, positively impacts decisions to fund ventures.
Breugst, N., Domurath, A., Patzelt, H., & Klaukien, A.	2012	Entrepreneurship Theory and Practice	The theory of emotional contagion; goal-setting theory	The perceptions of entrepreneurs' passion for inventing and developing enhance commitment, but entrepreneurial passion for founding reduces commitment. Employees' positive experience at work mediates this relationship.

Cardon, M. S., Gregoire, D. A., Stevens, C. E., & Patel, P. C.	2013	Journal of Business Venturing		The paper specifically includes consideration of interactive effects between the experience of intense positive feelings and identity centrality.
Murnieks, C. Y., Mosakowski, E., & Cardon, M. S.	2014	Journal of Management	Identity theory	Entrepreneurial passion correlates with entrepreneurial identity centrality and is associated with individual entrepreneurial behavior and entrepreneurial self-efficacy.
Gielnik, M. M., Spitzmuller, M., Schmitt, A., Klemann, D. K., & Frese, M.	2015	Academy of Management Journal	Goal-setting theory; social cognitive theory; control theory; self-perception theory; self-determination theory	Entrepreneurial efforts predict changes in entrepreneurial passion.
Collewaert, V., Anseel, F., Crommelinck, M., De Beuckelaer, A., & Vermeire, J.	2016	Journal of Management Studies	Self-regulation and role theory	Entrepreneurs' intense positive feelings for founding correlate negatively with entrepreneurs' identity centrality.
Bao, J., Zhou, X., & Chen, Y.	2017	Social Behavior and Personality	Social cognitive theory	Entrepreneurial passion impacts opportunity recognition and entrepreneurial behavior, while opportunity recognition partially mediates the relationship between entrepreneurial passion and behavior.
Biraglia, A., & Kadile, V.	2017	Journal of Small Business Management	Social cognitive theory	Entrepreneurial passion strongly and positively relates to entrepreneurial intention, and entrepreneurial self-efficacy mediates the relationship.

Santos, S. C., & Cardon, M. S.	2019	Entrepreneurship Theory and Practice		Team entrepreneurial passion for inventing and developing positively relates to team entrepreneurial performance.
Karimi, S.	2020	Applied Economics	The theory of planned behavior	The paper suggests a significant indirect relationship between entrepreneurial passion and intention via their cognitive antecedents.
Li, C., Murad, M., Shahzad, F., Khan, M. A. S., Ashraf, S. F., & Dogbe, C. S. K.	2020	Frontiers in Psychology	The theory of planned behavior; social cognitive theory; reasoned action theory	Entrepreneurial passion positively influences entrepreneurial alertness, self-efficacy, intention, and behavior.
Luu, N., & Nguyen, H.	2020	Journal of Small Business Management	Broaden-and-build theory	Entrepreneurial passion positively impacts a firm's exploratory innovation strategies and has a complex inverted U-shaped effect on these strategies.
Ma, C., Yang, J., Chen, L., You, X., Zhang, W., & Chen, Y.	2020	Social Behavior and Personality	Motivation–opportunity–ability theory	Entrepreneurial passion moderates the relationship between social network and opportunity identification.
Murnieks, C. Y., Klotz, A. C., & Shepherd, D. A.	2020	Journal of Organizational Behavior		The article confirms the conclusion that entrepreneurial motivation drives entrepreneurial behavior.
Pollack, J. M., Ho, V. T., O'Boyle, E. H., & Kirkman, B. L.	2020	Journal of Organizational Behavior		The article studies the three streams of passion at work which relate to different outcomes.
Syed, I., Butler, J. C., Smith, R. M., & Cao, X.	2020	Personality and Individual Differences	Self-regulation theory	The relationship between entrepreneurial passion and intention is mediated by innovativeness and curiosity.

Newman, A., Obschonka, M., Moeller, J., & Chandan, G. G.	2021	Applied Psychology	The article provides an overview of theories, definitions, measurements, and research models in the first-generation passion literature and offers suggestions on how to conduct second-generation passion research by identifying the current issues and gaps.
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2.3.2 Entrepreneurial Persistence

Entrepreneurial Persistence

As a behavior, entrepreneurial persistence is another critical element in entrepreneurship (Suvittawat, 2019; Wu & Dagher, 2007) and is considered as a key factor in determining whether a venture succeeds (Cardon & Kirk, 2015). Persistence has been defined as a behavior to achieve a certain goal over a period of time (Kanfer, 1990) and as an effort to endure while the entrepreneur attempts to reach the goal (Wu & Dagher, 2007). Markman et al. (2005) defined perseverance as “one’s tendency to persist and endure in the face of adversity” (Markman et al., 2005) p. 4). Therefore, time and adversity are two important aspects in persistence (Wu & Dagher, 2007). Entrepreneurship is a complicated, ongoing process of discovering and exploiting opportunities and promoting products/services. Entrepreneurial persistence has two components: first, the motivation to pursue an entrepreneurial opportunity; second, the continuous pursuit of the opportunity (Holland & Shepherd, 2013). Entrepreneurial persistence represents decisions that are made repeatedly and that change with changes in the external environment (Holland & Garrett, 2015).

Hoang and Gimeno (2010) developed the theory of founder role identity and demonstrated that the configuration of founder role identities influenced the extent and type of persistence that founders exhibited (Hoang & Gimeno, 2010). Entrepreneurs (specifically, founders) experience various levels of uncertainty or negative feedback in the founding stage until the venture is established. The article explored how distinctive role identity configurations of founders caused entrepreneurs to “persist in different ways by considering both their willingness and ability to pursue new behavioral avenues in response to negative feedback” (Hoang & Gimeno, 2010) p.48). It also identified that those entrepreneurs with high centrality and high complexity characteristics were more likely to persist in their efforts and achieve their goals under conditions of negative feedback.

Recent evidence confirms that cognitive scripts explain behavioral differences between entrepreneurs and non-entrepreneurs within countries (Mitchell, Smith, Seawright, & Morse, 2000). By focusing on the issue of “adverse co-occurrence,” (Markman et al., 2005) investigated two positive attributes (i.e., perseverance and self-efficacy) and one negative attribute (regretful thinking) to determine their influence on entrepreneurial perseverance of entrepreneurs and non-entrepreneurs. They found that entrepreneurs and non-entrepreneurs had clear differences on two dimensions of perseverance (perceived control and responsibility for adverse circumstances) and self-efficacy, and on two indices of regretful thinking (type and strength of regret).s Therefore, perseverance and self-efficacy co-occur with regretful thinking. While both entrepreneurs and non-entrepreneurs had almost the same amount of regrets, the regrets that entrepreneurs experienced were much stronger and different than were those of non-entrepreneurs.

Entrepreneurial persistence is considered as an essential prerequisite to the success of a given venture (Caliendo et al., 2020). Caliendo et al. (2020) identified the basic measurement of entrepreneurial persistence and constructed two indicators, survival and hybrid persistence. They confirmed that human capital and business-related characteristics contributed the most to survival, while personality and business characteristics were vital factors in explaining the hybrid measure. Leading ventures to success depended on founders' persistence in reacting to a changing environment as well as on feedback; this echoes the finding that high persistence does not necessarily lead to a venture's final success (Holland & Shepherd, 2013).

Entrepreneurial self-efficacy is generally understood as an individual's belief in one's capability of performing and achieving the desired entrepreneurial outcomes (Chen, Greene, & Crick, 1998). It is regarded as a key psychological construct in entrepreneurship research (Miao, Qian, & Ma, 2017) and is associated with all entrepreneurial factors, including motivation, intention, and behavior. Cardon and Kirk (2015) found that entrepreneurial self-efficacy is correlated with entrepreneurial persistence and argued that self-efficacy made founders more persistent regarding business goals. Newman et al. (2019) provided a systematic review of entrepreneurial self-efficacy and studied how it acted as a moderator. Entrepreneurial passion fully mediated the relationship between self-efficacy and persistence for inventing, but only partially for founding (Newman et al., 2019). This shows that entrepreneurial self-efficacy as an individual's conscious belief is an important antecedent in decision making (Mauer, Neergaard, & Linstead, 2017) and impacts entrepreneurial behavior.

Lack of persistence is one of the reasons that entrepreneurs do not survive over the long term (McDaniel, 2002). Entrepreneurs need to persist in their endeavors when they encounter difficulties and uncertainties (Hatch & Zweig, 2000). Wu et al. (2007) used the "achievement

theory” of (McClelland & Mac Clelland, 1961) to explain entrepreneurial persistence. That is, behavior is guided by a need for achievement, which motivates entrepreneurs to persist over time to achieve their goals, and the need for achievement positively influences persistence, which is inconsistent with previous research (McClelland & Mac Clelland, 1961). It was also found that business goals moderated the relationship between the need for achievement and entrepreneurial persistence, a finding that deepens insight into entrepreneurial motivation theory. Table 2.1.2 summarizes the journal findings for entrepreneurial persistence.

Table 2.1.2 Research Foundation Article – Entrepreneurial Persistence

Author	Year	Journal	Theory	Key findings
Markman, G. D., Baron, R. A., & Balkin, D. B.	2005	Journal of Organizational Behavior		The article concludes that entrepreneurs obtain higher scores on self-efficacy and on two distinct aspects of perseverance—perceived control over adversity and perceived responsibility regarding outcomes of adversity.
Wu, S., & Dagher, G. K.	2007	Management Research News	Need-motive-value theory; achievement theory	The need to achieve positively correlates with entrepreneurial persistence. Business goals moderate their relationship.
Hoang, H., & Gimeno, J.	2010	Journal of Business Venturing	Founder role identity	A new theory, founder role identity, was developed. The paper identifies that founder role identity has an influence on entrepreneurial persistence of the founder, as well as on successful founding.
Newman, A., Obschonka, M., Schwarz, S., Cohen, M., & Nielsen, I.	2019	Journal of Vocational Behavior	Social cognitive theory	The study conducts a systematic review of the literature on entrepreneurial self-efficacy.
Caliendo, M., Goethner, M., & Weißenberger, M.	2020	Journal of Small Business Management	Person-job fit theory; expectancy-value theory	Business characteristics and personality determine hybrid persistence.

2.3.3 Entrepreneurial Passion and Persistence

Cardon et al. (2015) examined the relationship between entrepreneurial self-efficacy and persistence, in particular, the role that entrepreneurial passion played within the relationship.

They found that entrepreneurial passion (especially for founding and developing) mediated the relationship between entrepreneurial self-efficacy and persistence (Cardon & Kirk, 2015) and that entrepreneurial passion is not the same as general passion (Breugst et al., 2012; Chen et al., 2009; Mitteness et al., 2012).

Using data from Thailand, Suvittawat (2019) researched the relationship between entrepreneurial passion and enthusiasm and entrepreneurial persistence for small and medium enterprises and proposed five variables for entrepreneurial passion: commitment to the product or service, enthusiasm for competition, passion for entrepreneurship, enthusiasm for opportunity, and enthusiasm for development (Suvittawat, 2019). The results demonstrated that entrepreneurial passion and enthusiasm (i.e., commitment to the product or service, enthusiasm for competition, passion for entrepreneurship, enthusiasm for opportunity, and enthusiasm for development) were positively correlated with entrepreneurial persistence.

Similarly, Xia et al. (2020) investigated the relationship between entrepreneurial passion and new enterprise performance by including entrepreneurial perseverance and entrepreneurial competence. Entrepreneurial perseverance is the persistent behavior of entrepreneurs when they encounter a changing external environment (Bandura, 1997). Entrepreneurial competence can be interpreted as entrepreneurs' capability of collecting valuable information and finding and utilizing an opportunity while paying close attention to the changing external environment (Shane & Venkataraman, 2000; Zahra, Sapienza, & Davidsson, 2006). The result proposed that entrepreneurial passion positively influenced new enterprise performance and that entrepreneurial perseverance mediated this relationship. Entrepreneurial competence mediated the relationship between entrepreneurial perseverance and new enterprise performance positively and partially mediated the relationship between entrepreneurial passion and new enterprise

performance (Xia et al., 2020). Therefore, those entrepreneurs who have stronger entrepreneurial competence persist in their efforts to achieve success.

The literature has shown the relationship between entrepreneurial passion and persistence, as well as the moderating factors impacting the relationship. I propose that entrepreneurial passion influences entrepreneurial persistence. I chose social cognitive theory as my theoretical foundation as it posits that goals motivate behavior; thus, passion correlates with persistence. I examined the relationship of entrepreneurial passion for inventing and developing to entrepreneurial persistence by focusing on the establishment of a business and persistence in developing the business. I used entrepreneurial passion for founding as a control variable in my study and opportunity evaluation as the moderator. Table 2.1.3 summarizes the findings regarding entrepreneurial passion and persistence.

Table 2.1.3 Research Foundation Article – Entrepreneurial Passion & Persistence

Author	Year	Journal	Theory	Key findings
Cardon, M. S., & Kirk, C. P.	2015	Entrepreneurship Theory and Practice	Self-determination theory	Entrepreneurial passion mediates the relationship between entrepreneurial self-efficacy and persistence.
Suvittawat, A.	2019	International Journal of Entrepreneurship		Entrepreneurial passion positively correlates to entrepreneurial persistence.
Xia, L., Han, Q., & Zhang, W.	2020	Social Behavior and Personality		Entrepreneurial passion positively impacts new enterprise performance, and entrepreneurial perseverance mediates this relationship.

2.3.4 Opportunity Evaluation

Entrepreneurial opportunity evaluation plays an important role in entrepreneurial research and is a core construct in entrepreneurship (Holcombe, 2003; Shane, 2000). In the past decade, entrepreneurial scholars have researched understanding how to discover, evaluate, and exploit entrepreneurial opportunity (Shane & Venkataraman, 2000; Venkataraman, 2019). Haynie et al. (2009) described opportunity evaluation as “the process of evaluating a set of circumstances that if acted upon, may result in wealth generating products and services” (Haynie, Shepherd, & McMullen, 2009). Opportunity evaluation is a vital step in the entrepreneurial process for the entrepreneur to decide whether to pursue the opportunity and realize a profit.

Prior research has suggested that entrepreneurial passion and preparedness has influenced venture capitalists’ investment decisions. Chen et al. (2009) suggested that perceived passion and preparedness scales help distinguish between affection and cognition that are involved in preparing and making business decisions (Chen et al., 2009). Their study revealed how new venture investment decisions are made and the underlying mechanisms involved in the process. The authors concluded that preparedness, not passion, positively impacted decisions to fund ventures. They proposed that venture capitalists and entrepreneurs often interact; therefore, investors make judgments based on more than one occasion and rely more on the ongoing internal passion of entrepreneurs. More research is needed to examine how the behavioral component of entrepreneurial passion influences judgment and decision making (Chen et al., 2009). To fill the gap, I used opportunity evaluation as the moderator to investigate how it impacts the relationship between entrepreneurial passion and entrepreneurial persistence.

In relation to opportunity evaluation, there is no comprehensive integrated theoretical framework for a core construct in the relationship, nor are there well-validated measures (Scheaf et al., 2020). To address this problem, Scheaf et al. (2020) collected definitions for various judgment criteria thought and synthesized these criteria into a formative, multi-dimensional opportunity attractiveness construct. They proposed that “opportunity evaluation culminates in a judgement [of] personal opportunity attractiveness which consist of gain estimation, loss estimation and perceived feasibility” (Scheaf et al., 2020, p. 14). (See Table 2.2 for definitions of the constructs.) The dimensions, which are independent and are assessed separately (Covin & Wales, 2012), are [refunding?] to each other; therefore, a high value on one dimension can compensate for a low value on another dimension. In summary, opportunity evaluation is formed by independent components (gain estimation, loss estimation, and perceived feasibility) with potentially different individual weighting. I used these constructs as moderators and examined how they impacted the relationship between entrepreneurial passion and persistence.

Table 2.2 Construct definitions

Constructs	Gain Estimation	Loss Estimation	Perceived Feasibility
Definitions	"Assessing the potential personal monetary and non-monetary benefits resulting from opportunity pursuit"	"Individuals' assessments of the personal costs potentially resulting from failed venturing in pursuit of specific opportunities"	"Individuals' assessment of their ability and capacity to execute the tasks associated with a specific opportunity pursuit"
Source	Scheaf et al. (2020) (P.7)		

2.4 Research Model and Hypotheses Development

I introduce my research model based on social cognitive theory and then discuss my constructs (entrepreneurial passion, entrepreneurial persistence, and opportunity evaluation) and their relationship with each other. I then develop my hypotheses based on the relationship among the constructs. (See Figure 2.1)

2.4.1 Research Model

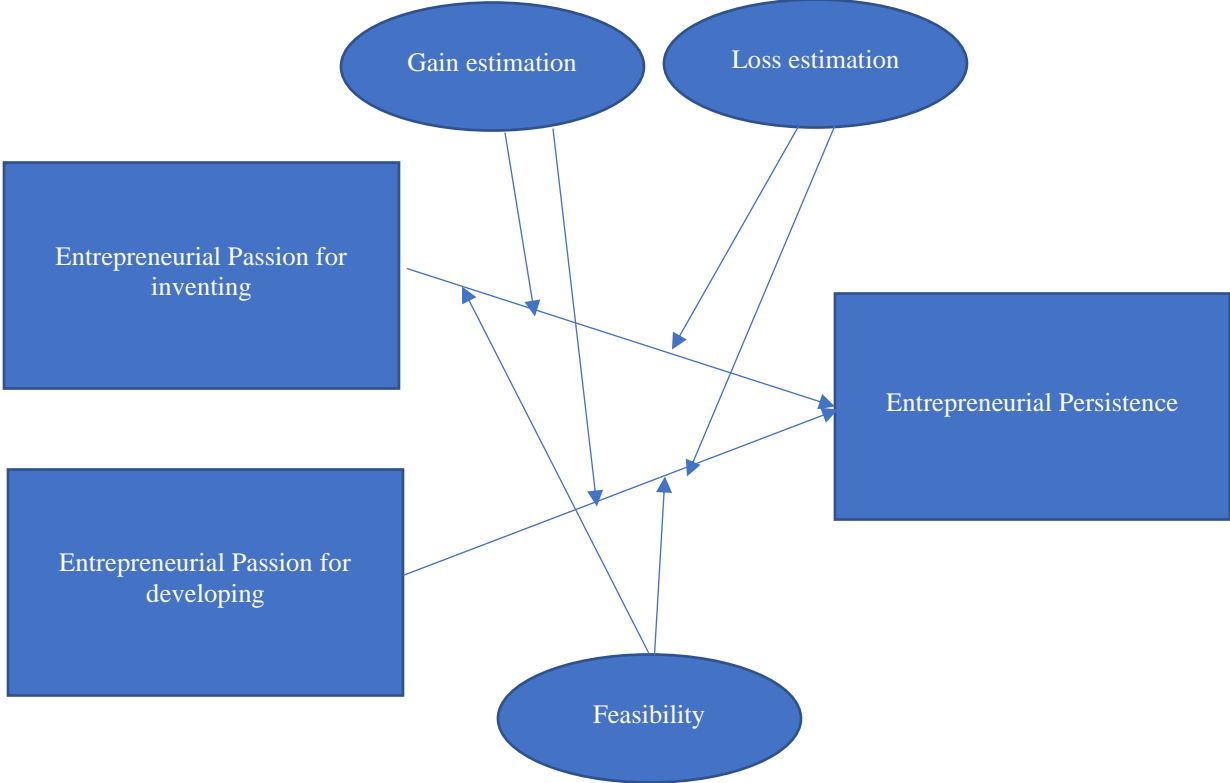
Scholars often use social cognitive theory as a theoretical framework to examine entrepreneurs' motivations and behaviors. Social cognitive theory is the foundation for studying entrepreneurial intentions affected by personal cognitive and environmental factors together (Bacq et al., 2016; Wood & Bandura, 1989). It combines behavior, motivation, and an environmental perspective to explain human actions and the results.

Entrepreneurs' goals motivate their behavior to achieve those goals (Bandura, 1986). My conceptual model represents entrepreneurial motivation and behavior, moderated by the factors of gain estimation, loss estimation, and feasibility. Scholars have discussed the relationship of entrepreneurial passion to entrepreneurial behavior (Baumeister, Vohs, Nathan DeWall, & Zhang, 2007; Cardon & Kirk, 2015). Markman and Baron (2003) documented that social cognitive theory might reveal how the constructs impact each other (Markman & Baron, 2003). I seek to address the findings and gaps revealed by previous scholars in my literature review. Cardon et al. (2013) proposed entrepreneurial passion as consisting of passion for inventing, passion for founding, and passion for developing. I focused only on the establishment of ventures and persistence in developing a business; therefore, my research model includes only

entrepreneurial passion for inventing and developing as the independent variables.

Entrepreneurial passion for founding is included as the control variable.

Figure 2.1 Research Model



2.4.2 Hypotheses development

I examined the relationship between entrepreneurial passion and persistence, as well as factors that moderate their relationship. The research model (Figure 2.1) diagrams the relationships leading to the eight hypotheses. The independent variable and dependent variable are moderated by opportunity evaluation in the form of gain estimation, loss estimation, and perceived feasibility.

Table 2.3 Hypotheses relationship

Entrepreneurial passion for inventing and entrepreneurial persistence
H1: Entrepreneurial passion for inventing is positively associated with entrepreneurial persistence
H2: Gain estimation doesn't moderate the relationship between entrepreneurial passion for inventing and entrepreneurial persistence
H3: Loss estimation doesn't moderate the relationship between entrepreneurial passion for inventing and entrepreneurial persistence
H4: Feasibility doesn't moderate the relationship between entrepreneurial passion for inventing and entrepreneurial persistence

Entrepreneurial passion for developing and entrepreneurial persistence
H5: Entrepreneurial passion for developing is positively associated with entrepreneurial persistence
H6: Gain estimation positively moderates the relationship between entrepreneurial passion for developing and entrepreneurial persistence
H7: Loss estimation negatively moderates the relationship between entrepreneurial passion for developing and entrepreneurial persistence
H8: Feasibility positively moderates the relationship between entrepreneurial passion for developing and entrepreneurial persistence

Entrepreneurial passion and entrepreneurial persistence

The independent variable is entrepreneurial passion, and the dependent variable is entrepreneurial persistence. Cardon et al. (2009) introduced a framework of entrepreneurial passion based on certain roles of entrepreneurs. Different entrepreneurial activities such as

inventing, founding, and developing involve various levels of entrepreneurial passion (Breugst et al., 2012). As my dissertation focuses on identifying, inventing, and exploring new business opportunities, my hypotheses consist of two parts: the relationship of entrepreneurial passion for inventing with entrepreneurial persistence and the relationship of entrepreneurial passion for developing with entrepreneurial persistence. Entrepreneurial passion for founding is included as a control variable.

Prior literature has suggested that entrepreneurial passion promotes entrepreneurial behaviors. Baum and Locke (2004) stated that CEOs' recruiting behavior is positively influenced by their affections. Cardon et al. (2009) showed that entrepreneurial passion positively impacts entrepreneurial behaviors and persistence. Hence, I expect that entrepreneurial passion (including both passion for inventing and for developing) has a positive influence on entrepreneurial persistence (Bao et al., 2017; Cardon & Kirk, 2015; Li et al., 2020; Murnieks et al., 2014; Suvittawat, 2019; Xia et al., 2020).

Scholars who have researched the relationship between entrepreneurial self-efficacy and persistence using a wider model found that entrepreneurial passion partially mediated the relationship between entrepreneurial self-efficacy and persistence (Cardon & Kirk, 2015). My study focused only on the relationship of passion to persistence and explored this relationship further with additional moderators.

Using data from Thailand, Suvittawat (2019) examined the relationship between entrepreneurial passion and enthusiasm and entrepreneurial persistence for small and medium enterprises (SMEs) and proposed five components of entrepreneurial passion: commitment to the product or service, enthusiasm for competition, passion for entrepreneurship, enthusiasm for

opportunity, and enthusiasm for development. The results demonstrated that entrepreneurial passion and enthusiasm were positively correlated with entrepreneurial persistence.

Xia et al. (2020) investigated the relationship between entrepreneurial passion and new enterprise performance by including entrepreneurial perseverance and entrepreneurial competence. Entrepreneurial perseverance is the persistent behavior of entrepreneurs when they encounter a changing external environment (Bandura, 1997). Entrepreneurial competence can be interpreted as entrepreneurs' ability to collect valuable information and to identify and utilize an opportunity in a changing external environment (Shane & Venkataraman, 2000; Zahra et al., 2006). Xia et al. (2020) proposed that entrepreneurial passion positively influenced new enterprise performance and that entrepreneurial perseverance mediated this relationship; moreover, entrepreneurial competence positively mediated the relationship between entrepreneurial perseverance and new enterprise performance and partially mediated the relationship between entrepreneurial passion and new enterprise performance. Hence, entrepreneurs who have stronger competence persist in their efforts to achieve success.

The study of the relationship between entrepreneurial passion and persistence in my dissertation is based on these findings and on social cognitive theory. Entrepreneurial passion as a fundamental factor influences entrepreneurial behavior (Cardon & Stevens, 2009). I expect a positive relationship between entrepreneurial passion and persistence because entrepreneurial passion mediates the relationship between entrepreneurial self-efficacy and entrepreneurial persistence (Cardon & Kirk, 2015), and entrepreneurial perseverance mediates the relationship between entrepreneurial passion and enterprise performance (Xia et al., 2020).

Entrepreneurial passion for inventing represents those activities that entrepreneurs engage in to identify and explore new opportunities (Breugst et al., 2012). Entrepreneurs who are

passionate about inventing aggressively pursue new opportunities (Cardon & Stevens, 2009). Through their consistent efforts, entrepreneurs are more likely to succeed in their business ventures. Entrepreneurial passion for inventing leads to great positive affect and establishes clear goals for the organization (Breugst et al., 2012). Hence, I suggest that:

Hypothesis 1: Entrepreneurial passion for inventing is positively associated with entrepreneurial persistence

Although previous scholars have shed light on the relationship between entrepreneurial passion and entrepreneurs' behaviors (Cardon & Kirk, 2015; Cardon et al., 2009b), moderation effects have not been studied (Bao et al., 2017). According to social cognitive theory (Markman & Baron, 2003), one factor that can alter the relationship between entrepreneurial passion for inventing/developing and entrepreneurial persistence is opportunity evaluation. Keh et al. (2002) explored the impact of opportunity evaluation in entrepreneurship, which could potentially change entrepreneurs' beliefs, behaviors, and actions. Opportunity evaluation, described as "the process of evaluating a set of circumstances that if acted upon, may result in wealth generating products and services" (Haynie et al., 2009), is a fundamental cognitive process that is critical to entrepreneurial success.

According to social cognitive theory (Bandura, 1986), people are actors as well as products of their environment; they assess opportunity and make decisions based on evaluation of an opportunity. If their evaluation is positive, entrepreneurs pursue the opportunity and attempt to gain a profit. Scheaf et al. (2020) proposed that "opportunity evaluation culminates in a judgement [of] personal opportunity attractiveness which consists of gain estimation, loss

estimation and perceived feasibility” (p. 14). I used these constructs identified in Table 2.2 as moderators and tested how they impacted the relationship of the independent and dependent variables in my model.

The most important factors pertaining to opportunity evaluation are perceived risk, gain estimation, and the probability of success (Forlani & Mullins, 2000; Shane & Venkataraman, 2000). Perceived profit, an important goal for entrepreneurs, determines if they will pursue the potential opportunity, as an entrepreneur is defined as “someone who engages in exchange of profit” (McMullen & Shepherd, 2006). Estimating perceived gain resulting from entrepreneurial action, including inventing and developing, influences entrepreneurs’ judgment of further actions. Without favorable gain estimation, entrepreneurs would decide not to pursue the opportunity (Kirzner, 1973).

Entrepreneurs who are passionate about inventing aggressively pursue new opportunities (Cardon & Stevens, 2009), leading to higher levels of persistence. I argue that this relationship is stronger when the entrepreneur has a more favorable gain estimation of the opportunity. When a new opportunity shows high gain potential, entrepreneurs are more likely to pursue the opportunity, as gain estimation attracts their interest (Venkataraman & Shane, 2000). Entrepreneurs with higher levels of passion for inventing are more likely to persist as gain estimation increases. On the contrary, entrepreneurs with low passion for inventing are also likely to be more persistent but at lower levels of passion than entrepreneurs with higher levels of passion. However, those with lower levels of passion for inventing and lower gain estimation will likely experience lower levels of persistence. At lower gain estimation, entrepreneurs are more likely to seek new opportunities (Brinckmann, Grichnik, & Kapsa, 2010; Tumasjan, Welppe, & Spörrle, 2013), regardless of levels of passion.

Hence, I posit that.

H2: Gain estimation moderates the relationship positively between entrepreneurial passion for inventing and entrepreneurial persistence

One of the critical goals of a business is making a profit. Gupta et al. (2014) suggested that the assessment of opportunity attractiveness involves gain/loss estimates (Gupta, Goktan, & Gunay, 2014). According to Kim et al. (2010), entrepreneurial decisions require a gain/non-gain frame, whereby entrepreneurs monitor for and identify potential risk and loss (Kim, Clelland, & Bach, 2010). If risk and potential loss are detected, entrepreneurs may decide not to pursue the opportunity (Shane & Venkataraman, 2000). Entrepreneurs with passion for inventing usually are less likely to be persistent when they experience higher loss estimation, which renders expected value low or nonexistent (Bushman, Piotroski, & Smith, 2011). For those opportunities having lower loss potential, passionate entrepreneurs tend to revisit other factors to determine if they will pursue the opportunity and, thus, are likely to be more persistent. Conversely, entrepreneurs with low passion are even more likely to not pursue opportunities if they sense higher potential loss (Brinckmann et al., 2010; Bryant, 2007). Thus, while entrepreneurs with high passion for inventing may overcome initial loss estimation and remain persistent, higher loss estimation has a strong diminishing effect on the relationship between entrepreneurial passion for inventing and entrepreneurial persistence.

Hence, I posit that:

H3: Loss estimation negatively moderates the relationship between entrepreneurial passion for inventing and entrepreneurial persistence

Perceived feasibility addresses the individual's ability or capability (Dimov, 2010). Scheaf et al. (2020) proposed that perceived feasibility is the entrepreneur's assessment of the level of the opportunity that can be turned into a manifest product or service by competently engaging in tasks and activities (Scheaf et al., 2020). Scholars have suggested that opportunity evaluation emphasizes the ability or capability of problem solving for the future (Autio, Dahlander, & Frederiksen, 2013) and that entrepreneurs' knowledge of opportunities plays an important role in entrepreneurial decision making (Bryant, 2007).

Entrepreneurs who are passionate about inventing show a positive affect when identifying and exploring new opportunities. Inventing is a key activity in young ventures, one in which entrepreneurs are often actively involved (Katz, Aldrich, Welbourne, & Williams, 2000). When entrepreneurs see positive perceived feasibility in an opportunity and believe that they possess the required skills and abilities to explore it, they are more likely to pursue that opportunity (Bryant, 2007), thus strengthening the relationship between entrepreneurial passion for inventing and entrepreneurial persistence. Regardless of passion for inventing, entrepreneurs tend not to pursue an opportunity when they estimate low perceived feasibility (McMullen & Shepherd, 2006; Vogel, 2017). However, even entrepreneurs with lower passion for inventing are more likely to be persistent if they perceive higher feasibility or believe they have the requisite knowledge (Mitchell & Shepherd, 2010). In contrast, entrepreneurs with both low passion for inventing and low feasibility assessments of an opportunity will likely experience lower levels of persistence.

Hence, I hypothesize the following:

H4: Feasibility positively moderates the relationship between entrepreneurial passion for inventing and entrepreneurial persistence

Entrepreneurs with passion for developing their current venture show a strong positive affect when they engage in finding new customers, developing new markets, and optimizing organizational processes (Breugst et al., 2012), activities that are important for venture success in the long term. According to social cognitive theory (Bandura, 1986), people perform a behavior when they observe a model performing that behavior. Both entrepreneurs and employees have the same interests in making the company successful; as the company develops, both groups benefit from more opportunities. Theoretically, entrepreneurs and employees are willing to persist and strive for success when they see the potential for company growth and have passion for developing the venture.

Passion for developing is related to the growth and expansion of the business after its initial foundation (Cardon et al., 2009a). Entrepreneurs are motivated not because of a desire to found a company, but to develop a company (Cliff, 1998). For both firms they founded and those they stepped into after founding, entrepreneurs have passion for developing their firm into a valuable and sustainable venture (Cardon et al., 2013).

Hence, I propose that:

H5: Entrepreneurial passion for developing is positively associated with entrepreneurial persistence

To measure venture success, financial goals are a vital element for entrepreneurs to make judgments regarding business development. Gain estimation leads entrepreneurs to continue developing the current business or to create new markets/products (Grichnik et al., 2010; Gupta et al., 2014; Sirén, Patel, & Wincent, 2016). The overall expectation of gains or profits, ultimately, will strengthen the relationship between entrepreneurial passion for developing and entrepreneurial persistence. Entrepreneurs pursue an opportunity and develop it when they see it is worthy of pursuit; that is, the business is estimated to make a profit. Those entrepreneurs with high levels of passion for developing are more likely to persist as their gain estimation increases. Low gain estimation causes entrepreneurs to hesitate and research the opportunity with caution. On the contrary, entrepreneurs with low passion for developing are also likely to be more persistent but at lower levels of passion than entrepreneurs with higher levels of passion. However, individuals with lower levels of passion for developing and lower gain estimation will likely experience lower levels of persistence. At lower gain estimation, entrepreneurs are more likely to stop pursuing the current opportunity to avoid the risk that the venture might fail (Kim et al., 2010).

Hence, I hypothesize:

H6: Gain estimation positively moderates the relationship between entrepreneurial passion for developing and entrepreneurial persistence

Entrepreneurs with passion for inventing will not persist in pursuing the business if they perceive loss from the potential opportunity. Similarly, entrepreneurs who operate and develop the business will not persist if they perceive loss of opportunity. Entrepreneurs with high passion for developing the business may enjoy activities such as increasing sales, hiring new employees, or finding external funding to expand the business (Cardon et al., 2013), with the goal of making a profit. When entrepreneurs perceive financial loss, their passion for developing is impacted and they may stop engaging in business activities. Entrepreneurs with passion for developing usually are less likely to be persistent when they experience higher loss estimation, which renders expected value low or nonexistent (Bushman et al., 2011). For those opportunities having lower loss potential, passionate entrepreneurs tend to revisit other factors to determine if they will pursue the opportunity and, thus, are likely to be more persistent. Conversely, entrepreneurs with low passion are even more likely to not pursue an opportunity if they sense higher potential loss (Brinckmann et al., 2010; Bryant, 2007). Thus, while entrepreneurs with high passion for inventing may overcome initial loss estimation and remain persistent, higher loss estimation has a strong diminishing effect on the relationship between entrepreneurial passion for inventing and entrepreneurial persistence.

In conclusion, when the level of loss estimation is higher, the relationship between entrepreneurial passion and persistence weakens.

Consequently, my study proposes that:

H7: Loss estimation negatively moderates the relationship between entrepreneurial passion for developing and entrepreneurial persistence

Entrepreneurial passion for developing reflects the passion for taking actions related to nurturing, growing, and expanding the venture after its initial foundation. Entrepreneurs who lack strong belief in their capabilities are likely to hesitate to continue developing the current business or to create a new product/service. Regardless of passion for developing, entrepreneurs tend not to pursue an opportunity when they estimate low perceived feasibility (McMullen & Shepherd, 2006; Vogel, 2017). However, even entrepreneurs with lower passion for developing are more likely to persist if they perceive higher feasibility of the opportunity or believe they have the requisite knowledge (Mitchell & Shepherd, 2010). In contrast, entrepreneurs with both low passion for inventing and low feasibility assessments of an opportunity will likely experience lower levels of persistence.

Those entrepreneurs who believe themselves to be capable (possess the requisite skills and knowledge) will persist in working on the business and developing the venture (Bryant, 2007). Through passion for developing, entrepreneurs become more committed to their goals and, thus, become more persistent (Maier & Brunstein, 2001). Therefore, perceived feasibility strengthens the relationship between entrepreneurial passion and persistence.

Hence, I posit that:

H8: Feasibility positively moderates the relationship between entrepreneurial passion for developing and entrepreneurial persistence

Chapter 3: Methodology

This chapter provides a detailed account of the methodology used to test the model and hypothesis and prepare the data to test the hypothesized relationship presented in Chapter 2. As I examined the relationship between entrepreneurial passion for inventing and developing and entrepreneurial persistence, in accordance with best practice (as recommended by (Aguinis, Villamor, & Ramani, 2021), I focused on small-size firms in the United States.

3.1 Overview

The goal of this dissertation is to investigate the relationship between entrepreneurial passion and persistence and to provide evidence that entrepreneurial passion for inventing and developing (the independent variable) influences entrepreneurial persistence (the dependent variable), as moderated by opportunity evaluation (via gain estimation, loss estimation, and feasibility). I used a quantitative survey that included the previously validated measures. A quantitative survey is a common method in empirical research that tests for the statistical relationship between variables collected in survey data.

3.2 Survey instrument

Quantitative surveys are the best way to collect a large amount of data from a large number of people in a short amount of time (Vanderstoep & Johnson, 2008). Surveys can be conducted remotely, and participants can respond at their convenience. Surveys can be targeted to certain population groups. They are an economical way to conduct research (Bhattacharjee, 2012).

Surveys can be performed by telephone, mail, email, and face-to-face interviews (Vanderstoep & Johnson, 2008).

Table 3.1 Survey types

	Pros	Cons
Telephone	Easy to contact as most people have telephones; high response rate	People might not be patient and treat it as telemarketing; lower participation rate
Mail	Can purchase mail address easily through database company; participants can finish survey at their own pace	Low response rate unless incentives are provided; more expense such as labor and postage
Email	Low cost and less work compared to mail survey	Response bias as those without technological resources will be less likely to respond
Face to face interview	Obtain thorough data	Expense in terms of labor and costs; smaller sample size

3.2.1 Survey approach

Quantitative survey methodology was used for data collection. I used the software statistics package, SPSS, to test my hypotheses. I collected data from Prolific electronic data sampling and utilized the previously validated measures to evaluate the independent and dependent variables.

3.3 Survey sample

My survey was distributed via Qualtrics to the participants who were CEOs of small-size businesses between 2010 and 2020. Firms were less than 10 years old; number of employees ranged from 1 to 100. The survey sample size was 176.

3.4 Measures

The survey used previously validated measures of each variable and consisted of questions about gender, education, serial entrepreneur, industry, year started, years of working experience, company age, and number of company employees.

The measurement scale of the dependent? variable, entrepreneurial persistence, appears first (Table 3.2). This is followed by the measurement scales of the independent? variable, entrepreneurial passion (inventing and developing) (Tables 3.3 and 3.4). The measurement scale for the moderator, opportunity evaluation, appears next (Table 3.5). This is followed by the measurement scale of the control variables (Tables 3.6 and 3.7).

3.4.1 Dependent Variable

Entrepreneurial persistence, the dependent variable, examines how long entrepreneurs pursue the business after start-up and how they react to the different situations that impact the business. The items related to entrepreneurial persistence were measured using a 7-point Likert-type scale (*strongly disagree* = 1 to *strongly agree* = 7) (Cardon & Kirk, 2015; Wu & Dagher, 2007).

Table 3.2 Entrepreneurial persistence measure

	Strongly Disagree						Strongly Agree
	1	2	3	4	5	6	7
I will still be pursuing the ideas that I selected three months earlier.	1	2	3	4	5	6	7
I continue to work on hard projects even when others oppose me.	1	2	3	4	5	6	7
I can think of many times when I persisted with work when others quit.	1	2	3	4	5	6	7
No matter how challenging my work is, I will not give up.	1	2	3	4	5	6	7

3.4.2 Independent Variable

Entrepreneurial passion, the independent variable, is considered the strongest emotion that entrepreneurs possess to engage in their daily activities (Cardon et al., 2005; Vallerand et al., 2003). In the survey, two types of entrepreneurial passion were measured, inventing and developing. The five items related to entrepreneurial passion for inventing were measured using a 7-point Likert-type scale (*strongly disagree* = 1 to *strongly agree* = 7) The four items related to entrepreneurial passion for developing were measured using a 7-point Likert-type scale (*strongly disagree* = 1 to *strongly agree* = 7) (Cardon et al., 2013).

Table 3.3 Measure of entrepreneurial passion for inventing

	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	6	7
It is exciting to figure out new ways to solve unmet market needs that can be commercialized.	1	2	3	4	5	6	7
Searching for new ideas for products/services to offer is enjoyable to me.	1	2	3	4	5	6	7
I am motivated to figure out how to make existing products/services better.	1	2	3	4	5	6	7
Scanning the environment for new opportunities really excites me.	1	2	3	4	5	6	7
Inventing new solutions to problems is an important part of who I am.	1	2	3	4	5	6	7

Table 3.4 Measure of entrepreneurial passion for developing

	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	6	7
I really like finding the right people to market my product/service to.	1	2	3	4	5	6	7
Assembling the right people to work for my business is exciting.	1	2	3	4	5	6	7
Pushing my employees and myself to make our company better motivates me.	1	2	3	4	5	6	7
Nurturing and growing companies is an important part of who I am.	1	2	3	4	5	6	7

3.4.3 Moderator

Entrepreneurial opportunity evaluation, which plays an important role in entrepreneurial research and is a core construct in entrepreneurship (Holcombe, 2003; Shane, 2000), is the moderator in my study. Covid has been a great challenge during the last two years and has necessitated many changes that can provide new opportunities. The items related to opportunity evaluation were measured using a 7-point Likert-type scale (*strongly disagree* = 1 to *strongly*

agree = 7) (Feng & Chen, 2020). I have used scale anchors from the article (Scheaf et al., 2020) and summarized my constructs as below three tables. I have eliminated one scales from perceived feasibility, as it doesn't apply.

Table 3.5.1 Measure of opportunity evaluation (Gain Estimation)

	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	6	7
I see large potential gains for myself in pursuing Covid related opportunities.	1	2	3	4	5	6	7
The potential upside in pursuing Covid related opportunities is large for me.	1	2	3	4	5	6	7
Pursue Covid related opportunities result in big profit for me.	1	2	3	4	5	6	7
I want to learn mor about Covid related opportunities.	1	2	3	4	5	6	7
I would love working on making Covid related opportunities a reality.	1	2	3	4	5	6	7
Pursue Covid related opportunities would be enjoyable for me.	1	2	3	4	5	6	7

Table 3.5.2 Measure of opportunity evaluation (Perceived Feasibility)

	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	6	7
I am well equipped to purchase Covid related opportunities.	1	2	3	4	5	6	7
At this point in my life, it would be easy for me to go after Covid related opportunities.	1	2	3	4	5	6	7
At this point in my life, I have no barriers preventing me from pursuing Covid related opportunities.	1	2	3	4	5	6	7

Table 3.5.3 Measure of opportunity evaluation (Loss Estimation)

	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	6	7
For me, the potential for loss in pursuing Covid related opportunity is high.	1	2	3	4	5	6	7
The overall riskiness of pursuing Covid related opportunities is high for me.	1	2	3	4	5	6	7
The size of the potential loss in pursuing Covid related opportunities is large for me.	1	2	3	4	5	6	7
For me, the exposure to loss in pursuing Covid related opportunities is sizable.	1	2	3	4	5	6	7

3.4.4 Control Variable

The control variables were selected based on identity theory, self-determination theory, and social cognitive theory, with the expectation that these variables would stay constant during my research and validation of the data. They were used to examine their influence on the independent and dependent variables. Control variables included gender, education, serial entrepreneur, industry, year started, years of working experience, company age, company sales, and number of employees (Cardon & Kirk, 2015; Chen et al., 2009; Murnieks et al., 2014).

Gender was used to control for differences between male, female, and others. Education, serial entrepreneur, industry, year started, and years of working experience were selected as those that might have impacted participants' entrepreneurial experience, in order to provide a common ground for data analysis (Murphy, Trailer, & Hill, 1996). Company age, company sales, and number of employees were used to control for the company's status and vitality. (See Table 3.6 for measures of the control variables.)

As my dissertation focused on entrepreneurial passion for inventing and entrepreneurial passion for developing, I included entrepreneurial passion for founding as a control variable (see Table 3.7). The four items related to entrepreneurial passion for founding were measured using a 7-point Likert-type scale (*strongly disagree* = 1 to *strongly agree* = 7).

Table 3.6 Control Variables

Gender	Male	Female	Others
Education	High school	Undergraduate	Graduate
Serial entrepreneur (if had multiple business)	Yes	No	
Industry (Specified in the survey)	()		
Which year was your company founded?	()		
What is the % of your ownership?	()		
Your age	()		
Company sales	()\$		
Number of employees	()		

Table 3.7 Measure of entrepreneurial passion for founding

	Strongly Disagree			Strongly Agree			
Establishing a new company excites me.	1	2	3	4	5	6	7
Owning my own company energizes me.	1	2	3	4	5	6	7
Nurturing a new business through its emerging success is enjoyable.	1	2	3	4	5	6	7
Being the founder of a business is an important part of who I am.	1	2	3	4	5	6	7

3.5 Data analysis

During data collection, data should be distributed randomly and normally and there should be no influence among individual observations (Hair, Risher, Sarstedt, & Ringle, 2019). In order to make sure that the data were selected randomly and distributed equally, I assessed the normality on the dependent variable items through a visual inspection. I used a cross-sectional correlation design for data collection instead of a longitudinal design because of time constraints.

A cross-sectional design studies research phenomena at a certain time, while a longitudinal design tracks changes over time (Vanderstoep & Johnson, 2008).

The number of data collected for the research was 176, as when I utilize 24 constructs of control, independent variables and action items, a desired power of at least .80, an alpha of .05, medium effect size of .3, it was suggested by G Power that the minimum sample size for regression was 169. My sample size exceeds the minimal suggested sample size and statistics power should not be considered a significant concern.

All tests were conducted using the latest version of IBM SPSS Statistics 27 software. As suggested by Hair et al. (2019), a primary analysis of the data was performed to identify any missing or incomplete data observations (Creswell & Creswell, 2017; Hair et al., 2019). I then performed a descriptive analysis on the data for the independent and dependent variables. I also conducted regression diagnosis tests before I started testing my research model and hypotheses.

All items were loaded into the testing. The results appear in Chapter 4, which includes descriptive statistics, correlation, regression analysis, G power analysis, and support for the hypothesis.

Chapter 4: Results

This chapter includes the quantitative results derived from the tests of the hypotheses in my research model. In my preliminary analysis, I examined the sample, checked for missing data and sample bias, and evaluated the measurement scales of each construct. I then conducted descriptive analysis and bivariate correlation analysis, followed by regression analysis for the hypothesized relationships.

4.1 Preliminary data analysis

Preliminary data analysis

Upon review, I noted that no missing data was included in the final data set, which could have led to biased or erroneous results (Hair, Anderson, Babin, & Black, 2010). I also checked for multicollinearity; as the VIF did not exceed 5.248, multicollinearity was not a concern.

Common method bias

Common method bias, the variance caused by systematic measurement error rather than the measures (Podsakoff, 2003), is often a concern in survey research (Podsakoff & Organ, 1986). I conducted a Harman's single-factor test and entered all multi-item constructs into EFA to determine the number of factors that emerged as well as the amount of variance explained. Six factors had values greater than 1. The first factor accounted for 35.05%; the last accounted for an accumulated 71.139%. Since the first factor did not contribute more than 50% bias, common method bias was not a concern (Hair Jr, Hult, Ringle, & Sarstedt, 2021).

4.2 Descriptive analysis and Correlation analysis

Descriptive Analysis

I performed descriptive analysis and correlation analysis after reviewing initial data. Table 4.1 displays the means and standard deviation generated for the dependent variable, independent variables, moderators, and control variables. The average age of participants was 41 years old; average education level was bachelor's degree. Manufacturing (Industry 1), Wholesale trade (Industry 2), Transportation and warehousing (Industry 3), Educational service (Industry 4), and Utilities (Industry 5) represent the top five industries in the final sample.

Correlation Analysis

As shown in Table 4.1, there were significant correlations among most variables. For example, gender, employee number, firm age, passion for inventing, passion for developing, passion for founding, gain estimation, loss estimation, and perceived feasibility were correlated with entrepreneurial persistence. Gain estimation and perceived feasibility, as moderators, were positively related to entrepreneurial passion for inventing and for developing and were also correlated with the dependent variable, entrepreneurial persistence.

Table 4.1 Descriptive Statistics and Bivariate Correction

Table 4.1 Descriptive Statistics and Bivariate Correlations

	Mean	Std. Deviation	1	2	3	4	5	6	7	8
1	0.909	0.28830								
2	0.1761	0.38202	-.146							
3	0.1534	0.36141	-.135	-.197						
4	0.0966	0.29624	-.103	-.151	-.139					
5	0.1761	0.38202	-.146	-.214**	-.197**	-.151*				
6	0.4489	0.49880	.033	.093	-.162*	.053	-.147			
7	0.4261	0.49592	.007	-.157	-.016	-.010	.084	.123		
8	40.95	10.799	-.017	-.102	.138	.025	-.082	-.120	.020	
9	2.08	0.817	.042	-.063	-.022	-.008	-.118	-.060	.212**	.271**
10	94.53	16.167	-.115	.011	.056	-.026	.144	.097	-.064	.101
11	19.61	27.138	-.050	-.039	-.130	.001	-.026	.231**	.233**	-.248**
12	9.3125	7.47790	-.019	-.043	.202**	.010	-.125	.002	.058	.420**
13	6.0545	0.99403	.034	.047	-.071	.106	.020	.045	.062	-.113
14	5.9460	1.07600	.025	.121	-.188*	.070	-.091	.128	.073	-.119
15	6.1690	0.98607	.046	.114	-.093	.027	.038	.019	.121	-.061
16	4.6705	1.55298	.063	.161*	-.076	.028	-.130	.033	.128	-.352**
17	4.6061	1.62093	.097	.063	-.130	.060	-.603	.128	.170*	-.319**
18	4.2145	1.54567	.036	.178*	.015	-.030	-.176*	.130	.085	-.250**
19	5.6420	0.94181	.068	.097	-.078	-.005	.025	.036	.094	-.181*

	9	10	11	12	13	14	15	16	17	18
1 Manufacturing										
2 Wholesale trade										
3 Transportation/Warehousing										
4 Educational service										
5 Utilities										
6 Gender										
7 Serial entrepreneur										
8 Age										
9 Education										
10 Company shares	-.004									
11 Employee number	.212**	-.142								
12 Firm age	.162*	.056	.008							
13 Passion for inventing	.020	.088	.036	-.079						
14 Passion for developing	.085	.006	.099	-.095	.763**					
15 Passion for founding	.049	.062	-.003	-.055	.815**	.684**				
16 Gain estimation	.055	.004	.182*	-.022	.275**	.301**	.269**			
17 Perceived feasibility	.047	-.061	.227**	.018	.293**	.316**	.261**	.788**		
18 Loss estimation	-.090	-.137	.042	-.052	.125	.127	-.014	.250**	.216**	
19 Persistence	.147	.035	.026	-.117	.605**	.639**	.639**	.337**	.322**	.144

n= 176 listwise

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

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

4.3 Regression result

The hypotheses were tested via bivariate regression analysis with four models. In all models, the control variables were employee number, industry, firm age, passion for founding, company shares, education, gender, serial entrepreneur, and age. The results for each of the constructs were related to entrepreneurial persistence (see Table 4.2).

In Model 1, entrepreneurial persistence was regressed onto the control variables. The results showed a significant relationship among most of the variables. Entrepreneurial passion for founding, which I controlled for, was related positively and significantly to entrepreneurial persistence ($\beta = 0.611$, $p < .001$), indicating that passion for founding enhances entrepreneurial persistence. Education, which was correlated positively and significantly to entrepreneurial persistence ($\beta = 0.193$, $p < .01$), indicated that higher education level can lead to higher entrepreneurial persistence. Age was correlated negatively with entrepreneurial persistence ($\beta = -0.191$, $p < .01$), implying that older entrepreneurs have higher entrepreneurial persistence compared to younger ones. Overall, these significant variables were good predictors of entrepreneurial persistence. Model 1 was significant ($p < .001$), with an adjusted R^2 of 0.418, suggesting that higher entrepreneurial passion for founding, higher education background, and older entrepreneurs demonstrated higher entrepreneurial persistence.

Model 2 tested Hypotheses 1 and 5. Entrepreneurial persistence was regressed on entrepreneurial passion for inventing and for developing together with all control variables. For Hypothesis 1, which argued that higher entrepreneurial passion for inventing leads to greater entrepreneurial persistence, there were no significant effects between entrepreneurial passion for inventing and entrepreneurial persistence. Hence, Hypothesis 1 was not supported. For

Hypothesis 5, which suggested that entrepreneurial passion for developing positively impacts entrepreneurial persistence, results showed that passion for developing had a positive relationship with entrepreneurial persistence ($\beta = 0.379$, $p < .001$). Hence, Hypothesis 5 was supported. Model 2 was significant ($p < .001$), with an adjusted $R^2 = 0.487$.

In Model 3, the moderators gain estimation, loss estimation, and perceived feasibility were added to the regression analysis. There were no significant main effects on the dependent variable.

In Model 4, interaction effects were added to the analysis. Entrepreneurial passion for inventing and entrepreneurial passion for developing combined with gain estimation, loss estimation, and perceived feasibility, individually. Loss estimation weakened the relationship of entrepreneurial passion for inventing to entrepreneurial persistence ($\beta = 0.29$, $p < .01$), as presented on the interaction plot in Figure 4.1. Therefore, Hypothesis 3 was supported. Loss estimation had a marginal significant and negative impact on the relationship between entrepreneurial passion for developing and entrepreneurial persistence ($\beta = -0.165$, $p < .10$), as presented on the interaction plot in Figure 4.2. Hence, Hypothesis 7 was marginally supported.

Table 4.2 Regression Analysis

Dependent Variable - Entrepreneurial Persistence				
Variables	Model 1	Model 2	Model 3	Model 4
	β	β	β	β
Controls				
Industry 1	0.036	0.058	0.048	0.057
Industry 2	0.029	0.044	0.021	0.030
Industry 3	0.029	0.080	0.079	0.056
Industry 4	-0.001	0.000	0.000	-0.008
Industry 5	0.024	0.081	0.101	0.102
Gender	0.030	0.004	0.004	0.026
Serial entrepreneur	-0.002	0.010	-0.016	-0.039
Firm age	-0.036	-0.021	-0.041	-0.054
Passion for founding	0.611***	0.345***	0.372***	0.354***
Company Shares	0.007	0.009	0.015	0.023
Education	0.193**	0.173**	0.170**	0.176**
Age	-0.191**	-0.169*	-0.110	-0.114
Employee number	-0.059	-0.075	-0.074	-0.071
Independent variables				
Passion for inventing		0.011	-0.030	0.048
Passion for developing		0.379***	0.361***	0.299**
Moderating variables				
Gain estimation			0.062	0.139
Perceived feasibility			0.041	0.009
Loss estimation			0.086	0.025
Interaction effects				
Passion for inventing and Gain estimation				0.006
Passion for inventing and Perceived feasibility				-0.063
Passion for inventing and Loss estimation				0.29**
Passion for developing and Gain estimation				-0.003
Passion for developing and Perceived feasibility				0.053
Passion for developing and Loss estimation				-0.165
R	0.679	0.729	0.739	0.761
R ²	0.461	0.531	0.545	0.579
Adjusted R ²	0.418	0.487	0.493	0.512
R ² Change	0.461	0.070	0.014	0.034
F	10.652***	12.021***	1.634***	2.011***

Standardized regression coefficients shown

† Significant at 0.1 level

* Significant at 0.05 level

** Significant at 0.01 level

*** Significant at 0.001 level

Figure 4.1 shows the relationship between the independent variables, entrepreneurial passion for inventing, moderator, loss estimation, and dependent variable, entrepreneurial persistence. According to Hypothesis 3, loss estimation negatively moderates the relationship between entrepreneurial passion for inventing and entrepreneurial persistence. There was a negative relationship between high loss estimation, passion for inventing, and persistence and a positive relationship between low loss estimation, passion for inventing, and persistence.

Figure 4.2 shows the relationship between the independent variables, entrepreneurial passion for developing, moderator, loss estimation, and dependent variable and entrepreneurial persistence. According to Hypothesis 7, loss estimation negatively moderates the relationship between entrepreneurial passion for inventing and entrepreneurial persistence. There was a negative relationship between high loss estimation, passion for developing, and persistence and a non-significant relationship between low loss estimation, passion for developing, and persistence.

Figure 4.1 Entrepreneurial passion for inventing loss estimation and entrepreneurial persistence

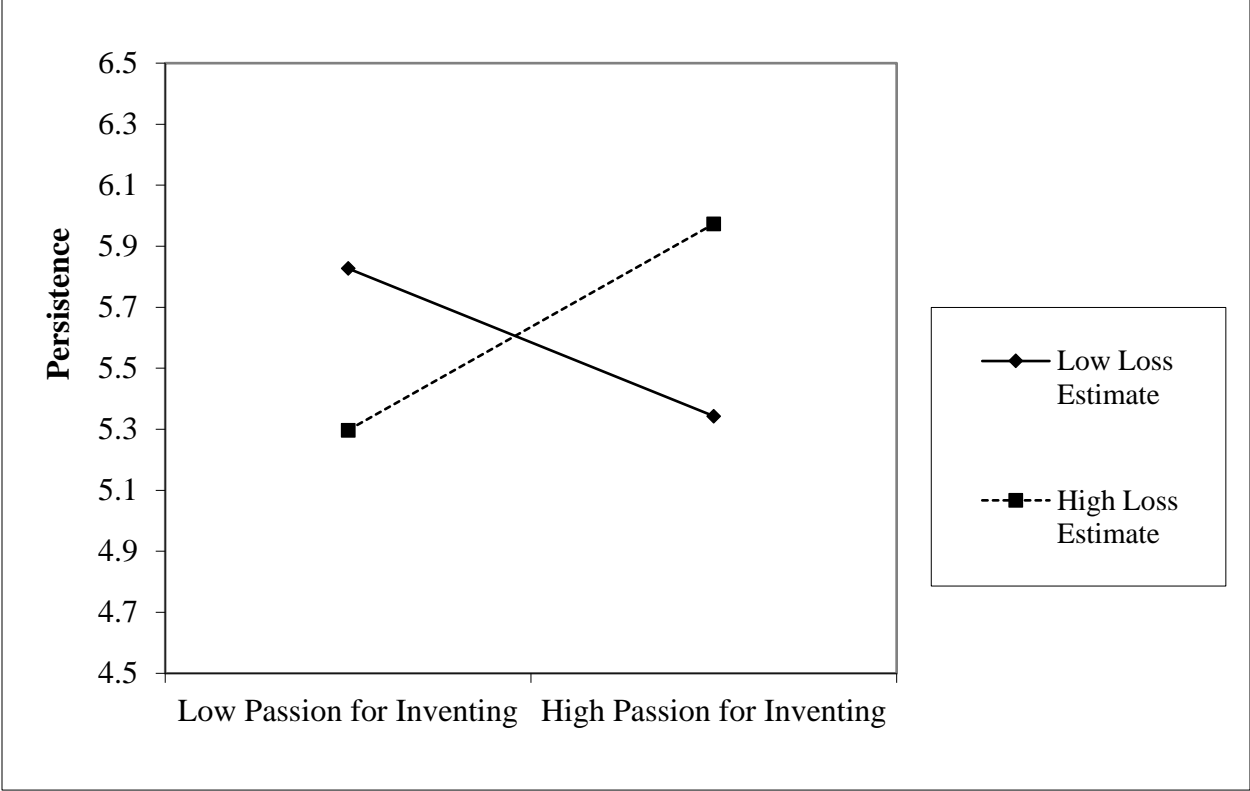
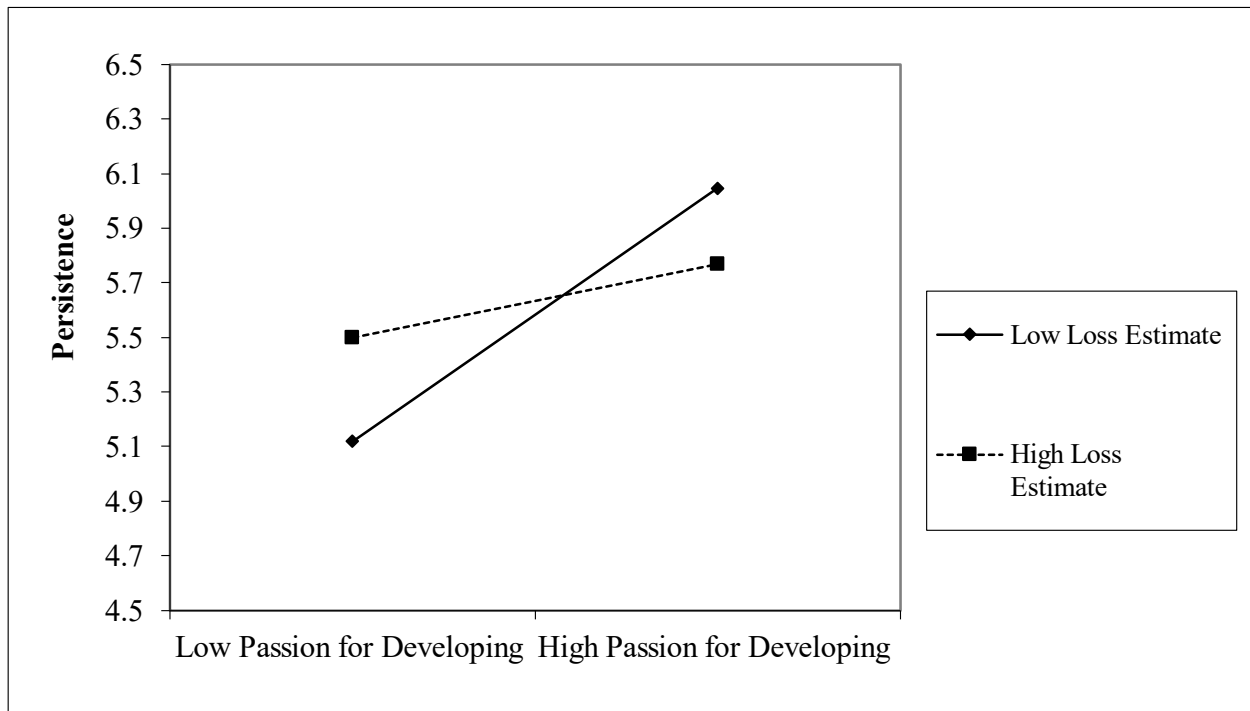


Figure 4.2 Entrepreneurial passion for developing loss estimation and entrepreneurial persistence



4.4 Conclusion

Table 4.3 summarizes the analysis of the hypotheses and the results of the analysis. Of the eight hypotheses, two were supported, one was marginally supported, and five were not supported.

Table 4.3 Summary of findings

Entrepreneurial passion for inventing and entrepreneurial persistence	
H1: Entrepreneurial passion for inventing is positively associated with entrepreneurial persistence	Not Supported
H2: Gain estimation positively moderates the relationship between entrepreneurial passion for inventing and entrepreneurial persistence	Not supported
H3: Loss estimation negatively moderates the relationship between entrepreneurial passion for inventing and entrepreneurial persistence	Supported
H4: Feasibility positively moderates the relationship between entrepreneurial passion for inventing and entrepreneurial persistence	Not supported
Entrepreneurial passion for developing and entrepreneurial persistence	
H5: Entrepreneurial passion for developing is positively associated with entrepreneurial persistence	Supported
H6: Gain estimation positively moderates the relationship between entrepreneurial passion for developing and entrepreneurial persistence	Not supported
H7: Loss estimation negatively moderates the relationship between entrepreneurial passion for developing and entrepreneurial persistence	Marginally Supported
H8: Feasibility positively moderates the relationship between entrepreneurial passion for developing and entrepreneurial persistence	Not supported

Chapter 5: Conclusion

After overviewing my study as well as the research question, I discuss the findings from the tests of the hypothesized relationships in my research model. I address the limitations and potential areas for future research, then discuss the contributions of my study to the literature, theory, and practice. Last, I conclude and provide answers to the research question.

5.1 Overview

Entrepreneurship involves risk taking, uncertainty, creativity, leadership, and proactivity; in particular, it requires persistence and passion (Newman et al., 2019). Persistence is a key element in entrepreneurial action to maintain ongoing firm growth in the face of uncertainty and difficulties (Cardon & Kirk, 2015; Wu & Dagher, 2007). Prior literature has shown that entrepreneurial passion enhances entrepreneurial persistence (Suvittawat, 2019) and that entrepreneurial innovation demands persistence in order to succeed (Drucker, 2014).

The primary purpose of my study was to seek a better understanding of the relationship between entrepreneurial passion and entrepreneurial persistence and how opportunity evaluation, including gain estimation, loss estimation, and perceived feasibility impact this relationship. I focused on entrepreneurial passion for inventing and entrepreneurial passion for developing and included entrepreneurial passion for founding as a control variable.

5.2 Research findings

The study showed mixed findings. The first hypothesis evaluated the relationship between entrepreneurial passion for inventing and entrepreneurial persistence. The fifth

hypothesis evaluated the relationship between entrepreneurial passion for developing and entrepreneurial persistence. Hypotheses 2, 3 4 and 6, 7, 8 examined the roles of gain estimation, loss estimation, and perceived feasibility as moderators of the relationship between entrepreneurial developing and entrepreneurial persistence.

Hypothesis 1, which proposed that entrepreneurial passion for inventing enhances entrepreneurial persistence, was not supported by the data. This agrees with the findings of Cardon et al. (2013); that is, only passion for founding and for developing were related to entrepreneurial persistence. Gielnik et. al. (2015) also found that entrepreneurial passion for inventing and for founding did not impact entrepreneurial persistence over time. Accordingly, this non-significant finding is consistent with prior literature (Cardon et al., 2013).?

Hypotheses 2, 3, and 4 tested whether moderators (gain estimation, loss estimation, and perceived feasibility) negatively or positively impacted the relationship between entrepreneurial inventing and entrepreneurial persistence. The moderating variables comprise opportunity attractiveness, which potentially influences entrepreneurial persistence, since they measure varying degrees of opportunity strength (Scheaf et al., 2020).

Hypothesis 2, which proposed that gain estimation positively moderated the relationship between entrepreneurial passion for inventing and entrepreneurial persistence, was not supported, as there was no significant moderating effect in my data analysis. Gain estimation was defined as “assessing the potential personal monetary and non-monetary benefits resulting from opportunity pursuit” (Scheaf et al., 2020). Gain estimation is not a decision-making factor for entrepreneurs; other factors impact decisions as well, such as risks, cash flow, feasibility, and so on (Wood, McKelvie, & Haynie, 2014; Wood & Williams, 2014).

Hypothesis 3, which proposed that loss estimation negatively moderated the relationship between entrepreneurial passion for inventing and entrepreneurial persistence, was supported. Loss estimation weakened the relationship between entrepreneurial passion for inventing and entrepreneurial persistence ($\beta = 0.29$ $P < .01$); there was no significant moderating effect in my data analysis. The results imply that by removing loss estimation from the potential inventing opportunity, entrepreneurs hesitated to continue with the project, as they did not want to encounter potential loss. Figure 4.1 shows a negative relationship between high loss estimation, passion for inventing, and persistence and a positive relationship between low loss estimation, passion for inventing, and persistence ($\beta = 0.29$ $P < .01$).

Hypothesis 4, which suggested that perceived feasibility positively moderated the relationship between entrepreneurial passion for inventing and entrepreneurial persistence, was not supported, as the product of the interaction terms was non-significant. Prior literature has shown that entrepreneurs who are passionate about inventing show positive affect while identifying perceived feasibility of the opportunity and, thus, explore new opportunities (Bryant, 2007; Dimov, 2010). However, I did not find this relationship in my data set.

Hypothesis 5, which proposed that entrepreneurial passion for developing enhances entrepreneurial persistence, was supported by the data (Model 2 $\beta = 0.379$ $P < .001$; Model 3 $\beta = 0.361$ $P < .001$; Model 4 $\beta = 0.299$ $P < .01$). This is consistent with Cardon et al. (2013) that entrepreneurial passion for developing and founding were related to entrepreneurial persistence.

Hypotheses 6, 7, and 8 tested whether moderators strengthened the relationship between entrepreneurial inventing and entrepreneurial persistence. Hypothesis 6, which proposed that gain estimation positively moderated the relationship between entrepreneurial passion for developing and entrepreneurial persistence, was not supported, as there was no significant

moderating effect in my data analysis. Entrepreneurs consider factors including cash flow, risks, and perceived feasibility to make decisions on business development. Although assessing opportunity attractiveness involves estimating potential gain (Gupta et al., 2014), this did not strengthen the relationship between entrepreneurial passion for developing and entrepreneurial persistence in my dataset.

Hypothesis 7, which proposed that loss estimation negatively moderated the relationship between entrepreneurial passion for developing and entrepreneurial persistence, was supported. I found a significant moderating effect in my data analysis ($\beta = -0.165$ $P < .10$). Figure 4.2 showed the relationship between independent variables, entrepreneurial passion for developing, moderator, loss estimation, and dependent variable and entrepreneurial persistence. There was a negative relationship between high loss estimation, passion for inventing, and persistence and a non-significant relationship between low loss estimation, passion for inventing, and persistence. As financial goals are important elements in a firm's development (Kuratko, Hornsby, & Naffziger, 1997), firms value company performance via a series of financial terms, such as gain and loss. Firms seek to make a profit; therefore, if analysis shows potential loss, entrepreneurs are likely to make decisions that interrupt current firm development efforts and pursue other profitable opportunities.

Hypothesis 8, which suggested that perceived feasibility positively moderated the relationship between entrepreneurial passion for developing and entrepreneurial persistence, was not supported, as there was no significant moderating effect in my data analysis. Perceived feasibility is determined by how entrepreneurs perceive the practicability or difficulty of the opportunity (Tumasjan et al., 2013); however, the moderating effect of perceived feasibility to

strengthen the relationship between entrepreneurial passion for developing and entrepreneurial persistence was not supported by my data.

5.3 Contribution

I sought to fill the research gap in the entrepreneurship (Cardon et al., 2012b; Cardon & Kirk, 2015; Newman et al., 2021), opportunity evaluation, and social cognitive theory literatures by examining the relationship between entrepreneurial passion for inventing and for developing and entrepreneurial persistence and how opportunity evaluation, including gain estimation, loss estimation, and perceived feasibility, impact this relationship. Empirical analysis suggests that entrepreneurial passion for developing enhances entrepreneurial persistence (Cardon et al., 2013) and that loss estimation negatively moderates the relationship between entrepreneurial passion for inventing and for developing and entrepreneurial persistence. Nonetheless, gain estimation and perceived feasibility did not have a significant moderating effect on the relationship between entrepreneurial passion for inventing and for developing and entrepreneurial persistence.

This study advances our understanding of the entrepreneurial passion and entrepreneurial persistence relationship, in particular, that between entrepreneurial passion for inventing and for developing and entrepreneurial persistence. Prior literature has acknowledged that entrepreneurial passion enhances entrepreneurial persistence (Cardon et al., 2012b; Cardon & Kirk, 2015; Suvittawat, 2019). My data showed that entrepreneurial passion for developing enhances entrepreneurial persistence; however, there was no significance between entrepreneurial passion for inventing and entrepreneurial persistence. This result indicates that entrepreneurs who have a strong passion for developing persist in efforts devoted to venture success (Cardon et al., 2013). Loss estimation, as one of the constructs of opportunity

evaluation, was negatively correlated with the relationship between entrepreneurial passion for inventing and for developing and entrepreneurial persistence. This implies that firms intending to enhance the relationship of entrepreneurial passion for inventing and for developing to entrepreneurial persistence can investigate and measure loss estimation moderating variables, which were negatively associated with this relationship. For practitioners, this study identifies opportunity evaluation judgment as an important moderator. In summary, entrepreneurial passion for developing positively impacts entrepreneurial persistence and there is a stronger and negative moderating effect within the relationship when loss estimation acts as a moderator.

5.4 Limitations and Future Research

5.4.1 Limitations

The validity and reliability of the study's findings may be limited because the data was from Qualtrics' third-party panels. Responding through Qualtrics can potentially lead to standard response bias, selection bias, and/or sample bias from unsuitable respondent populations (Hair et al., 2019). When designing the survey, I included a few questions and steps to help diminish the risks. Self-reported information identified and confirmed if the participants were qualified to answer the survey. Response bias can be detected and minimized using the social desirability scale (van de Mortel, 2008). Although I did not use this procedure in my study, I encourage its use in the future.

The small sample size is another concern. According to Hair et al. (2010), "Exceeding small samples have so much sampling error that identification of all, but the largest difference is important. Very large sample sizes increase the statistical power so that any difference, whether practically relevant or not, will be considered statistically significant. However, most research

situations fall somewhere in between these extremes, meaning the researcher must consider the impact of sample size on the results, both at the overall level and on a group-by-group basis” (p. 555). My original sample was 186, but listwise sample reduced it to 176. Hence, I encourage researchers to obtain larger sample sizes even though the power analysis I conducted supported my sample size. Although testing for multicollinearity showed that common method bias was not a concern, as the first factor did not contribute more than 50% bias (Hair Jr, Black, Babin, & Anderson, 2010), researchers should use an expanded sample size to avoid common method bias (Podsakoff & Organ, 1986).

Small business owners have their own characteristics. Financial criteria are usually the key factor to measure the business success, yet many small business owners consider other factors as the key of success such as life style or personal factors (Walker & Brown, 2004). This implies that when small business owners evaluate a potential opportunity, gain estimation or feasibility sometimes won't play an important role for small business owners, instead they focus on their own lifestyle and avoid big challenge, even the opportunity shows the potential profit or feasibility ahead. Comparing to invent a project, small business owners prefer to make efforts on developing, as the opportunities of inventing create uncertainties and challenge. Thus, this limits my study to certain extend.

Entrepreneurship is an emotional journey (Baron, 2008). Entrepreneurial emotion plays an important role in entrepreneurial process, the recognition, evaluation and exploration of a potential opportunity (Cardon et al., 2012a). Prior literature argued that individual decisions made by entrepreneurs at different circumstance may be impacted by entrepreneurial emotion (Cardon et al., 2012a). In particular, entrepreneurial emotion has an influence on opportunity recognition and evaluation, as well as entrepreneurial behavior. Therefore, different emotions

that the participant had when they filled out the survey could potentially result in bias. I encourage to include emotion in the research in the future to look at the impact on the relationship.

Covid as an opportunity circumstance in my survey provided to participants. This can be a limitation resulting in negative response. Covid has brought enormous economic impact on global economy (El-Charani, 2021). Many entrepreneurs have expressed that the continuity and the sustainability of their business are destroyed and can't be guaranteed anymore. Thus, with Covid included in the survey, there could be negative thoughts or concern from the participant, when they consider the opportunity. Loss estimation naturally become their focus when they evaluate the opportunity. In the future research, with Covid getting less impact on the economy, I would expect a different result from the survey.

5.4.2 Future Research

Entrepreneurial passion and entrepreneurial persistence are both critical to entrepreneurship. Although researchers have investigated both and gained a better understanding of their relationship (Breugst et al., 2012; Suvittawat, 2019; Xia et al., 2020), entrepreneurial passion and persistence still present many research opportunities.

Based on the small sample size, I used entrepreneurial passion for founding as a control variable. With an expanded sample size, entrepreneurial passion for founding can be investigated as an independent variable; the relationship of entrepreneurial passion for founding to entrepreneurial persistence can then be examined. Another possibility is to study the relationship between entrepreneurial self-efficacy and entrepreneurial persistence as well as the moderating effects of opportunity evaluation on this relationship. Self-efficacy is a robust driver

of persistence as it enables one to persist through the difficulties and challenges associated with starting and running a business (Shane et al., 2003); it refers to one's self-confidence in their ability to accomplish a task or to attain expected high performance (Audia, Locke, & Smith, 2000). When confident, entrepreneurs are more likely to persist in their efforts to succeed. By adding opportunity evaluation (gain estimation, loss estimation, and perceived feasibility) as moderators, a deeper understanding of this relationship can be gained.

Business goal commitment can moderate the relationship between entrepreneurial passion and persistence. Commitment is defined as "how long an individual is willing to strive for a specific goal" (Austin & Vancouver, 1996, p. 6). Prior literature has shown that commitment leads to higher performance (Uy, Foo, & Ilies, 2015). Entrepreneurs who have strong commitment know what they want to accomplish and are willing to persist and spend more time and effort to achieve their goals (Oettingen et al., 2009). I expect that business goal commitment moderates the relationship between entrepreneurial passion and persistence.

Although entrepreneurial passion and firm performance have been studied previously (Ho & Pollack, 2014; Patel, Kohtamäki, Parida, & Wincent, 2015; Sirén et al., 2016), findings suggest that the relationship between entrepreneurial passion and firm performance needs to be examined further (Lee & Herrmann, 2021). An empirical review has suggested that entrepreneurial passion has a direct link to firm performance (Iyortsuun, Nmadu, Dakung, & Gajere, 2019). Therefore, I am interested to see opportunity evaluation's moderating effect on the relationship between entrepreneurial passion and firm performance.

As my survey represents only the United States, it was not generalized. Others can examine if individual firms from different cultures differ in entrepreneurial passion and persistence and if gain estimation, loss estimation, and perceived feasibility moderate this

relationship. For example, with the development of the Chinese economy, there are more and more entrepreneurs of small-size companies; however, there are differences among the entrepreneurs according to region or background. Rural migrants in China are more likely to engage in entrepreneurial activities than their urban counterparts and their rural counterparts who remain in rural areas (He, Lu, & Qian, 2019). Another critical challenge in China is that many entrepreneurs have limited access to credit (Ahlstrom & Ding, 2014). This implies that when entrepreneurs assess gain or loss of a potential opportunity, their considerations might be different. From that perspective, opportunity evaluation (gain estimation, loss estimation, and perceived feasibility) might have different moderating effects on the relationship between entrepreneurial passion and entrepreneurial persistence.

5.5 Conclusion

Using survey data obtained from entrepreneurs of small-size enterprises across various industries, I studied the relationship between entrepreneurial passion for inventing and for developing with entrepreneurial persistence, as well as the moderating effects of opportunity evaluation (gain estimation, loss estimation, and perceived feasibility) on this relationship. I found evidence that entrepreneurial passion for developing enhances entrepreneurial persistence. One construct of opportunity evaluation, loss estimation, negatively and partially moderated the relationship between entrepreneurial passion for inventing and entrepreneurial persistence and that loss estimation had a negative and full impact on the relationship between entrepreneurial passion for developing and entrepreneurial persistence.

There are areas that remain to be explored. First, entrepreneurial passion for founding or entrepreneurial self-efficacy can be investigated as predictors of entrepreneurial persistence.

Second, business goal commitment can be explored as a moderator impacting the relationship between entrepreneurial passion and entrepreneurial persistence. Third, scholars can study the relationship between entrepreneurial passion and firm performance by investigating the moderating effects of opportunity evaluation. Last, other areas should be explored, such as studying entrepreneurs from other cultures and their behavior.

Reference

- Aguinis, H., Villamor, I., & Ramani, R. S. 2021. MTurk research: Review and recommendations. *Journal of Management*, 47(4): 823-837.
- Ahlstrom, D., & Ding, Z. 2014. Entrepreneurship in China: an overview. *International Small Business Journal*, 32(6): 610-618.
- Alvarez, S. A., & Busenitz, L. W. 2001. The entrepreneurship of resource-based theory. *Journal of management*, 27(6): 755-775.
- Audia, P. G., Locke, E. A., & Smith, K. G. 2000. The paradox of success: An archival and a laboratory study of strategic persistence following radical environmental change. *Academy of Management journal*, 43(5): 837-853.
- Audretsch, D. B., Keilbach, M. C., & Lehmann, E. E. 2006. *Entrepreneurship and economic growth*: Oxford University Press.
- Autio, E., Dahlander, L., & Frederiksen, L. 2013. Information exposure, opportunity evaluation, and entrepreneurial action: An investigation of an online user community. *Academy of Management Journal*, 56(5): 1348-1371.
- Bacq, S., Hartog, C., & Hoogendoorn, B. 2016. Beyond the moral portrayal of social entrepreneurs: An empirical approach to who they are and what drives them. *Journal of Business Ethics*, 133(4): 703-718.
- Bae, T. J., Qian, S., Miao, C., & Fiet, J. O. 2014. The relationship between entrepreneurship education and entrepreneurial intentions: A meta-analytic review. *Entrepreneurship theory and practice*, 38(2): 217-254.
- Bandura, A. 1986. *Social foundations of thought and action : a social cognitive theory*. Englewood Cliffs, N.J: Prentice-Hall.
- Bandura, A. 1997. The anatomy of stages of change. *American journal of health promotion: AJHP*, 12(1): 8-10.
- Bao, J., Zhou, X., & Chen, Y. 2017. Entrepreneurial passion and behaviors: Opportunity recognition as a mediator. *Social Behavior and Personality: an international journal*, 45(7): 1211-1220.

- Baron, R. A. 2008. The role of affect in the entrepreneurial process. *Academy of management Review*, 33(2): 328-340.
- Baum, J. R., & Locke, E. A. 2004. The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *Journal of applied psychology*, 89(4): 587.
- Baum, J. R., Locke, E. A., & Kirkpatrick, S. A. 1998. A longitudinal study of the relation of vision and vision communication to venture growth in entrepreneurial firms. *Journal of applied psychology*, 83(1): 43.
- Baumeister, R. F., Vohs, K. D., Nathan DeWall, C., & Zhang, L. 2007. How emotion shapes behavior: Feedback, anticipation, and reflection, rather than direct causation. *Personality and social psychology review*, 11(2): 167-203.
- Bhattacharjee, A. 2012. Social science research: Principles, methods, and practices.
- Biraglia, A., & Kadile, V. 2017. The Role of Entrepreneurial Passion and Creativity in Developing Entrepreneurial Intentions: Insights from American Homebrewers. *Journal of small business management*, 55(1): 170-188.
- Breugst, N., Domurath, A., Patzelt, H., & Klaukien, A. 2012. Perceptions of entrepreneurial passion and employees' commitment to entrepreneurial ventures. *Entrepreneurship theory and practice*, 36(1): 171-192.
- Brinckmann, J., Grichnik, D., & Kapsa, D. 2010. Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning–performance relationship in small firms. *Journal of business Venturing*, 25(1): 24-40.
- Bryant, P. 2007. Self-regulation and decision heuristics in entrepreneurial opportunity evaluation and exploitation. *Management Decision*.
- Bushman, R. M., Piotroski, J. D., & Smith, A. J. 2011. Capital allocation and timely accounting recognition of economic losses. *Journal of Business Finance & Accounting*, 38(1-2): 1-33.
- Caliendo, M., Goethner, M., & Weißenberger, M. 2020. Entrepreneurial persistence beyond survival: Measurement and determinants. *Journal of Small Business Management*, 58(3): 617-647.

- Cardon, M. S. 2008. Is passion contagious? The transference of entrepreneurial passion to employees. *Human resource management review*, 18(2): 77-86.
- Cardon, M. S., Foo, M. D., Shepherd, D., & Wiklund, J. 2012a. Exploring the heart: Entrepreneurial emotion is a hot topic. *Entrepreneurship theory and practice*, 36(1): 1-10.
- Cardon, M. S., Gregoire, D. A., Stevens, C. E., & Patel, P. C. 2013. Measuring entrepreneurial passion: Conceptual foundations and scale validation. *Journal of business venturing*, 28(3): 373-396.
- Cardon, M. S., Haynie, M., & Murnieks, C. Y. 2012b. *Harmonious and Obsessive Entrepreneurial Passion and Their Interaction with the Environment*. Paper presented at the Academy of Management Proceedings.
- Cardon, M. S., & Kirk, C. P. 2015. Entrepreneurial passion as mediator of the self-efficacy to persistence relationship. *Entrepreneurship theory and practice*, 39(5): 1027-1050.
- Cardon, M. S., & Stevens, C. E. 2009. *THE DISCRIMINANT VALIDITY OF ENTREPRENEURIAL PASSION*. Paper presented at the Academy of Management Proceedings.
- Cardon, M. S., Sudek, R., & Mitteness, C. 2009a. The impact of perceived entrepreneurial passion on angel investing. *Frontiers of entrepreneurship research*, 29(2): 1.
- Cardon, M. S., Wincent, J., Singh, J., & Drnovsek, M. 2005. *ENTREPRENEURIAL PASSION: THE NATURE OF EMOTIONS IN ENTREPRENEURSHIP*. Paper presented at the Academy of Management Proceedings.
- Cardon, M. S., Wincent, J., Singh, J., & Drnovsek, M. 2009b. The nature and experience of entrepreneurial passion. *Academy of management Review*, 34(3): 511-532.
- Chen, C. C., Greene, P. G., & Crick, A. 1998. Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of business venturing*, 13(4): 295-316.
- Chen, X.-P., Yao, X., & Kotha, S. 2009. Entrepreneur passion and preparedness in business plan presentations: a persuasion analysis of venture capitalists' funding decisions. *Academy of Management journal*, 52(1): 199-214.

- Cliff, J. E. 1998. Does one size fit all? Exploring the relationship between attitudes towards growth, gender, and business size. *Journal of business venturing*, 13(6): 523-542.
- Colbert, A. E., & Witt, L. 2009. The role of goal-focused leadership in enabling the expression of conscientiousness. *Journal of Applied Psychology*, 94(3): 790.
- Collewaert, V., Anseel, F., Crommelinck, M., De Beuckelaer, A., & Vermeire, J. 2016. When Passion Fades: Disentangling the Temporal Dynamics of Entrepreneurial Passion for Founding: Temporal Dynamics of Entrepreneurial Passion. *Journal of management studies*, 53(6): 966-995.
- Covin, J. G., & Wales, W. J. 2012. The measurement of entrepreneurial orientation. *Entrepreneurship theory and practice*, 36(4): 677-702.
- Creswell, J. W., & Creswell, J. D. 2017. *Research design: Qualitative, quantitative, and mixed methods approaches*: Sage publications.
- Dimov, D. 2010. Nascent entrepreneurs and venture emergence: Opportunity confidence, human capital, and early planning. *Journal of management studies*, 47(6): 1123-1153.
- Drucker, P. 2014. *Innovation and entrepreneurship*: Routledge.
- El-Chaarani, H. 2021. COVID-19: problems, challenges and business opportunities. *EL-Chaarani H.(2021), COVID-19: Problems, Challenges and Business Opportunities, Journal of Contemporary Research in Business Administration and Economic Sciences (JCRBAES)*, 1(1).
- Feng, B., & Chen, M. 2020. The impact of entrepreneurial passion on psychology and behavior of entrepreneurs. *Frontiers in Psychology*: 1733.
- Forlani, D., & Mullins, J. W. 2000. Perceived risks and choices in entrepreneurs' new venture decisions. *Journal of business Venturing*, 15(4): 305-322.
- Gielnik, M. M., Spitzmuller, M., Schmitt, A., Klemann, D. K., & Frese, M. 2015. "I put in effort, therefore I am passionate": Investigating the path from effort to passion in entrepreneurship. *Academy of Management Journal*, 58(4): 1012-1031.

- Grichnik, D., Smeja, A., & Welp, I. 2010. The importance of being emotional: How do emotions affect entrepreneurial opportunity evaluation and exploitation? *Journal of Economic Behavior & Organization*, 76(1): 15-29.
- Gupta, V. K., Goktan, A. B., & Gunay, G. 2014. Gender differences in evaluation of new business opportunity: A stereotype threat perspective. *Journal of Business Venturing*, 29(2): 273-288.
- Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. 2010. *Multivariate data analysis: A global perspective (Vol. 7)*: Upper Saddle River, NJ: Pearson.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. 2019. When to use and how to report the results of PLS-SEM. *European business review*.
- Hair Jr, J., Black, W., Babin, B., & Anderson, R. 2010. Chapter 9: Cluster Analysis. *Multivariate data analysis*: 505-564.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. 2021. *A primer on partial least squares structural equation modeling (PLS-SEM)*: Sage publications.
- Hatch, J., & Zweig, J. 2000. DEPARTMENTS-ENTREPRENEURS-What is the stuff of an entrepreneur? *Ivey Business Journal*, 65(2): 68-72.
- Haynie, J. M., Shepherd, D. A., & McMullen, J. S. 2009. An opportunity for me? The role of resources in opportunity evaluation decisions. *Journal of Management studies*, 46(3): 337-361.
- He, C., Lu, J., & Qian, H. 2019. Entrepreneurship in China. *Small Business Economics*, 52(3): 563-572.
- Ho, V. T., & Pollack, J. M. 2014. Passion isn't always a good thing: Examining entrepreneurs' network centrality and financial performance with a dualistic model of passion. *Journal of Management Studies*, 51(3): 433-459.
- Hoang, H., & Gimeno, J. 2010. Becoming a founder: How founder role identity affects entrepreneurial transitions and persistence in founding. *Journal of business venturing*, 25(1): 41-53.

- Holcombe, R. G. 2003. The origins of entrepreneurial opportunities. *The Review of Austrian Economics*, 16(1): 25-43.
- Holland, D. V., & Garrett, R. P. 2015. Entrepreneur start-up versus persistence decisions: A critical evaluation of expectancy and value. *International Small Business Journal*, 33(2): 194-215.
- Holland, D. V., & Shepherd, D. A. 2013. Deciding to persist: Adversity, values, and entrepreneurs' decision policies. *Entrepreneurship Theory and Practice*, 37(2): 331-358.
- Houser-Marko, L., & Sheldon, K. M. 2006. Motivating behavioral persistence: The self-as-doer construct. *Personality and Social Psychology Bulletin*, 32(8): 1037-1049.
- Iyortsuun, A. S., Nmadu, M. T., Dakung, R., & Gajere, M. C. 2019. Entrepreneurial passion and venture performance: a proposed framework. *Management Research Review*.
- Kanfer, R. 1990. Motivation theory and industrial and organizational psychology. *Handbook of industrial and organizational psychology*, 1(2): 75-130.
- Karimi, S. 2020. The role of entrepreneurial passion in the formation of students' entrepreneurial intentions. *Applied economics*, 52(3): 331-344.
- Katz, J. A., Aldrich, H. E., Welbourne, T. M., & Williams, P. M. 2000. Guest editor's comments special issue on human resource management and the SME: Toward a new synthesis. *Entrepreneurship Theory and Practice*, 25(1): 7-10.
- Keh, H. T., Der Foo, M., & Lim, B. C. 2002. Opportunity evaluation under risky conditions: The cognitive processes of entrepreneurs. *Entrepreneurship theory and practice*, 27(2): 125-148.
- Kim, J.-N., Clelland, I., & Bach, S. 2010. Entrepreneurs as parallel processors: An examination of a cognitive model of new venture opportunity evaluation. *Academy of Entrepreneurship Journal*, 16(2): 57.
- Kirzner, I. M. 1997. Entrepreneurial discovery and the competitive market process: An Austrian approach. *Journal of economic Literature*, 35(1): 60-85.

- Kollmann, T., & Stöckmann, C. 2014. Filling the entrepreneurial orientation–performance gap: The mediating effects of exploratory and exploitative innovations. *Entrepreneurship Theory and Practice*, 38(5): 1001-1026.
- Kuratko, D. F., Hornsby, J. S., & Naffziger, D. W. 1997. An examination of owner's goals in sustaining entrepreneurship. *Journal of small business management*, 35(1): 24.
- Lee, Y., & Herrmann, P. 2021. Entrepreneurial passion: A systematic review and research opportunities. *Journal of Small Business Strategy*, 31(3): 122-147.
- Li, C., Murad, M., Shahzad, F., Khan, M. A. S., Ashraf, S. F., & Dogbe, C. S. K. 2020. Entrepreneurial Passion to Entrepreneurial Behavior: Role of Entrepreneurial Alertness, Entrepreneurial Self-Efficacy and Proactive Personality. *Frontiers in psychology*, 11: 1611-1611.
- Li, Y., Chen, H., Liu, Y., & Peng, M. W. 2014. Managerial ties, organizational learning, and opportunity capture: A social capital perspective. *Asia Pacific Journal of Management*, 31(1): 271-291.
- Locke, E. A., & Latham, G. P. 1990. *A theory of goal setting & task performance*: Prentice-Hall, Inc.
- Locke, E. A., & Latham, G. P. 2002. Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American psychologist*, 57(9): 705.
- Luu, N., & Nguyen, H. 2020. Entrepreneurial passion and a firm's innovation strategies. *Journal of small business management*: 1-25.
- Maier, G. W., & Brunstein, J. C. 2001. The role of personal work goals in newcomers' job satisfaction and organizational commitment: A longitudinal analysis. *Journal of Applied Psychology*, 86(5): 1034.
- 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.
- Markman, G. D., Baron, R. A., & Balkin, D. B. 2005. Are perseverance and self-efficacy costless? Assessing entrepreneurs' regretful thinking. *Journal of Organizational*

Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 26(1): 1-19.

Mauer, R., Neergaard, H., & Linstad, A. K. 2017. Self-efficacy: Conditioning the entrepreneurial mindset, ***Revisiting the entrepreneurial mind***: 293-317: Springer.

McClelland, D. C., & Mac Clelland, D. C. 1961. ***Achieving society***: Simon and Schuster.

McDaniel, B. 2002. Entrepreneurship and Innovation: An Economic Approach. ME Sharpe. ***Inc, New York***.

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.

Miao, C., Qian, S., & Ma, D. 2017. The relationship between entrepreneurial self-efficacy and firm performance: a meta-analysis of main and moderator effects. ***Journal of Small Business Management***, 55(1): 87-107.

Mitchell, J. R., & Shepherd, D. A. 2010. To thine own self be true: Images of self, images of opportunity, and entrepreneurial action. ***Journal of business venturing***, 25(1): 138-154.

Mitchell, R. K., Smith, B., Seawright, K. W., & Morse, E. A. 2000. Cross-cultural cognitions and the venture creation decision. ***Academy of management Journal***, 43(5): 974-993.

Mitteness, C., Sudek, R., & Cardon, M. S. 2012. Angel investor characteristics that determine whether perceived passion leads to higher evaluations of funding potential. ***Journal of Business Venturing***, 27(5): 592-606.

Mueller, V., Rosenbusch, N., & Bausch, A. 2013. Success patterns of exploratory and exploitative innovation: A meta-analysis of the influence of institutional factors. ***Journal of Management***, 39(6): 1606-1636.

Murnieks, C., & Mosakowski, E. 2006. ***Entrepreneurial passion: An identity theory perspective***. Paper presented at the annual meeting of the Academy of Management, Atlanta.

- Murnieks, C. Y., Klotz, A. C., & Shepherd, D. A. 2020. Entrepreneurial motivation: A review of the literature and an agenda for future research. *Journal of Organizational Behavior*, 41(2): 115-143.
- Murnieks, C. Y., Mosakowski, E., & Cardon, M. S. 2014. Pathways of passion: Identity centrality, passion, and behavior among entrepreneurs. *Journal of management*, 40(6): 1583-1606.
- Murphy, G. B., Trailer, J. W., & Hill, R. C. 1996. Measuring performance in entrepreneurship research. *Journal of business research*, 36(1): 15-23.
- Newman, A., Obschonka, M., Moeller, J., & Chandan, G. G. 2021. Entrepreneurial passion: A review, synthesis, and agenda for future research. *Applied Psychology*, 70(2): 816-860.
- Newman, A., Obschonka, M., Schwarz, S., Cohen, M., & Nielsen, I. 2019. Entrepreneurial self-efficacy: A systematic review of the literature on its theoretical foundations, measurement, antecedents, and outcomes, and an agenda for future research. *Journal of Vocational Behavior*, 110: 403-419.
- Oettingen, G., Mayer, D., Timur Sevincer, A., Stephens, E. J., Pak, H.-j., & Hagenah, M. 2009. Mental contrasting and goal commitment: The mediating role of energization. *Personality and Social Psychology Bulletin*, 35(5): 608-622.
- Patel, P. C., Kohtamäki, M., Parida, V., & Wincent, J. 2015. Entrepreneurial orientation-as-experimentation and firm performance: The enabling role of absorptive capacity. *Strategic Management Journal*, 36(11): 1739-1749.
- Peng, M. W., & Luo, Y. 2000. Managerial ties and firm performance in a transition economy: The nature of a micro-macro link. *Academy of management journal*, 43(3): 486-501.
- Platow, M. J., Haslam, S. A., Both, A., Chew, I., Cuddon, M., Goharpey, N., Maurer, J., Rosini, S., Tsekouras, A., & Grace, D. M. 2005. "It's not funny if they're laughing": Self-categorization, social influence, and responses to canned laughter. *Journal of Experimental Social Psychology*, 41(5): 542-550.
- Podsakoff, N. 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(879): 10.1037.

- Podsakoff, P. M., & Organ, D. W. 1986. Self-reports in organizational research: Problems and prospects. *Journal of management*, 12(4): 531-544.
- Pollack, J. M., Ho, V. T., O'Boyle, E. H., & Kirkman, B. L. 2020. Passion at work: A meta-analysis of individual work outcomes. *Journal of Organizational Behavior*, 41(4): 311-331.
- Scheaf, D. J., Loignon, A. C., Webb, J. W., Heggstad, E. D., & Wood, M. S. 2020. Measuring opportunity evaluation: Conceptual synthesis and scale development. *Journal of Business Venturing*, 35(2).
- Shane, S., Locke, E. A., & Collins, C. J. 2003. Entrepreneurial motivation. *Human resource management review*, 13(2): 257-279.
- Shane, S., & Venkataraman, S. 2000. The promise of entrepreneurship as a field of research. *Academy of management review*, 25(1): 217-226.
- Shane, S. A. 2000. Prior knowledge and the discovery of entrepreneurial opportunities. *Organization Science*, 11(4): 448-469.
- Sirén, C., Patel, P. C., & Wincent, J. 2016. How do harmonious passion and obsessive passion moderate the influence of a CEO's change-oriented leadership on company performance? *The Leadership Quarterly*, 27(4): 653-670.
- Souitaris, V., Zerbinati, S., & Al-Laham, A. 2007. Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business venturing*, 22(4): 566-591.
- Stam, W., Arzlanian, S., & Elfring, T. 2014. Social capital of entrepreneurs and small firm performance: A meta-analysis of contextual and methodological moderators. *Journal of business venturing*, 29(1): 152-173.
- Suvittawat, A. 2019. ENTREPRENEURIAL PASSION DOMAINS OF SMALL AND MEDIUM ENTERPRISES (SMES): A CASE STUDY OF LOWER NORTHEASTERN, THAILAND. *International journal of entrepreneurship*, 23(1): 1-10.
- Syed, I., Butler, J. C., Smith, R. M., & Cao, X. 2020. From entrepreneurial passion to entrepreneurial intentions: The role of entrepreneurial passion, innovativeness, and

- curiosity in driving entrepreneurial intentions. *Personality and individual differences*, 157: 109758.
- Teng, B. S. 2007. Corporate entrepreneurship activities through strategic alliances: A resource-based approach toward competitive advantage. *Journal of Management studies*, 44(1): 119-142.
- Tumasjan, A., Welpel, I., & Spörrle, M. 2013. Easy now, desirable later: The moderating role of temporal distance in opportunity evaluation and exploitation. *Entrepreneurship Theory and Practice*, 37(4): 859-888.
- Uy, M. A., Foo, M.-D., & Ilies, R. 2015. Perceived progress variability and entrepreneurial effort intensity: The moderating role of venture goal commitment. *Journal of Business Venturing*, 30(3): 375-389.
- Vallerand, R. J., Houliort, N., & Fores, J. 2003. Passion at work. *Emerging perspectives on values in organizations*, 6(8): 175-204.
- Vallerand, R. J., Salvy, S. J., Mageau, G. A., Elliot, A. J., Denis, P. L., Grouzet, F. M., & Blanchard, C. 2007. On the role of passion in performance. *Journal of personality*, 75(3): 505-534.
- Vanderstoep, S. W., & Johnson, D. D. 2008. *Research methods for everyday life: Blending qualitative and quantitative approaches*: John Wiley & Sons.
- Venkataraman, S. 2019. The distinctive domain of entrepreneurship research, *Seminal ideas for the next twenty-five years of advances*: Emerald Publishing Limited.
- Venkataraman, S., & Shane, S. 2000. The promise of entrepreneurship as a field of research. *Academy of management review*, 25(1): 217-226.
- Vesalainen, J., & Pihkala, T. 1997. *Entrepreneurial identity, intentions and the effect of the push-factor*. Paper presented at the Allied Academies International Conference. Academy of Entrepreneurship. Proceedings.
- Vogel, P. 2017. From venture idea to venture opportunity. *Entrepreneurship Theory and Practice*, 41(6): 943-971.

- Walker, E., & Brown, A. 2004. What success factors are important to small business owners? *International small business journal*, 22(6): 577-594.
- Wood, M. S., McKelvie, A., & Haynie, J. M. 2014. Making it personal: Opportunity individuation and the shaping of opportunity beliefs. *Journal of Business Venturing*, 29(2): 252-272.
- Wood, M. S., & Williams, D. W. 2014. Opportunity evaluation as rule-based decision making. *Journal of Management Studies*, 51(4): 573-602.
- Wood, R., & Bandura, A. 1989. Social cognitive theory of organizational management. *Academy of management Review*, 14(3): 361-384.
- Wu, S., & Dagher, G. K. 2007. Need for achievement, business goals, and entrepreneurial persistence. *Management Research News*.
- Xia, L., Han, Q., & Zhang, W. 2020. Entrepreneurial passion, entrepreneurial perseverance, and new enterprise performance: Evidence from China. *Social behavior and personality*, 48(6): 1-9.
- Zahra, S. A., Sapienza, H. J., & Davidsson, P. 2006. Entrepreneurship and dynamic capabilities: A review, model and research agenda. *Journal of Management studies*, 43(4): 917-955.

Appendix

Appendix A: Informed consent form



Consent to Participate in a Research Study

Title of the Project: Entrepreneurial Passion and Persistence

Principal Investigator: Xiaowen He

Co-investigator:

Faculty Advisor: Dr. Franz Kellermanns

Study Sponsor:

You are invited to participate in a research study. Participation in this research study is voluntary. The information provided is to give you key information to help you decide whether or not to participate.

- The purpose of this study is to examine some of the finer points of how entrepreneurial passion promotes entrepreneurial persistence and how opportunity evaluation moderates their relationship.
- You must be age between 18 -65 to participate in this study.
- You are asked to complete a survey asking a series of questions about entrepreneurial passion and persistence as well as opportunity evaluation. The questions are not sensitive or overly personal.
- It will take you about 15 minutes to complete the survey.
- We do not believe that you will experience any risk from participating in this study.
- You will not benefit personally by participating in this study. What we learn about how entrepreneurial passion influence entrepreneurial persistence and how opportunity evaluation moderates the relationship.
- You will receive the pay from Qualtrics after you finish the survey. If you do not complete the survey, you will not receive the pay.

Your privacy will be protected, and confidentiality will be maintained to the extent possible. Your responses will be treated as confidential and will not be linked to your identity. Incentive payments are considered taxable income.

Survey responses will be stored separately with access to this information controlled and limited only to people who have approval to have access. We might use the survey data for future research studies and we might share the non-identifiable survey data with other researchers for future research studies without additional consent from you.

After this study is complete, study data may be shared with other researchers for use in other studies without asking for your consent again. The data we share will NOT include information that could identify you.

Participation is voluntary. You may choose not to take part in the study. You may start participating and change your mind and stop participation at any time.

If you have questions concerning the study, contact the principal investigator, Xiaowen He by email at xhe12@uncc.edu or the faculty adviser, Franz Kellermanns by email at fkellerm@uncc.edu. If you have further questions or concerns about your rights as a participant in this study, contact the Office of Research Protections and Integrity at (704) 687-1871 or uncc-irb@uncc.edu.

You may print a copy of this form. If you are 18 years of age or older, have read and understand the information provided and freely consent to participate in the study, you may proceed to the survey.

Appendix B: Entrepreneurial passion and persistence survey

A Doctorate student from University of North Carolina at Charlotte is studying entrepreneurial passion and persistence. The questions below have no right or wrong answers – I am interested in your opinions. Your response will assist in the further development of family firm research and understanding. All responses are confidential. *This survey should be answered by the current entrepreneur.*

NOTE: Throughout this survey, I am only referring to entrepreneur of small business.

Section 1: In this section I am interested in entrepreneur’s emotion and identities towards different entrepreneurial activities that they personally enjoy to a higher or lower degree. Please indicate your level of agreement with each of the statements below. Please indicate your level of agreement with each of the statements below (1 = Strongly disagree; 7= Strongly agree).

	Strongly Disagree					Strongly Agree	
It is exciting to figure out new ways to solve unmet market needs that can be commercialized.	1	2	3	4	5	6	7
Searching for new ideas for products/services to offer is enjoyable to me.	1	2	3	4	5	6	7
I am motivated to figure out how to make existing products/services better.	1	2	3	4	5	6	7
Searching for new ideas for products/services to offer is enjoyable to me.	1	2	3	4	5	6	7
Inventing new solutions to problems is an important part of who I am.	1	2	3	4	5	6	7

	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	6	7
I really like finding the right people to market my product/service to.	1	2	3	4	5	6	7
Assembling the right people to work for my business is exciting.	1	2	3	4	5	6	7
Pushing my employees and myself to make our company better motivates me.	1	2	3	4	5	6	7
Nurturing and growing companies is an important part of who I am.	1	2	3	4	5	6	7

	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	6	7
Establishing a new company excites me.	1	2	3	4	5	6	7
Owning my own company energizes me.	1	2	3	4	5	6	7
Nurturing a new business through its emerging success is enjoyable.	1	2	3	4	5	6	7
Being the founder of a business is an important part of who I am.	1	2	3	4	5	6	7

Section 2: Covid has been a great challenge during the last two years. Covid also necessitated many changes that can provide new opportunities. In light of Covid related opportunities, please answer the following questions.

	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	6	7
I see large potential gains for myself in pursuing Covid related opportunities.	1	2	3	4	5	6	7
The potential upside in pursuing Covid related opportunities is large for me.	1	2	3	4	5	6	7
Pursue Covid related opportunities result in big profit for me.	1	2	3	4	5	6	7
I want to learn mor about Covid related opportunities.	1	2	3	4	5	6	7
I would love working on making Covid related opportunities a reality.	1	2	3	4	5	6	7
Pursue Covid related opportunities would be enjoyable for me.	1	2	3	4	5	6	7
I am well equipped to purchase Covid related opportunities.	1	2	3	4	5	6	7
At this point in my life, it would be easy for me to go after Covid related opportunities.	1	2	3	4	5	6	7
At this point in my life, I have no barriers preventing me from pursuing Covid related opportunities.	1	2	3	4	5	6	7
For me, the potential for loss in pursuing Covid related opportunity is high.	1	2	3	4	5	6	7
The overall riskiness of pursuing Covid related opportunities is high for me.	1	2	3	4	5	6	7
The size of the potential loss in pursuing Covid related opportunities is large for me.	1	2	3	4	5	6	7
For me, the exposure to loss in pursing Covid related opportunities is sizable.	1	2	3	4	5	6	7

Section 3: In this section I am interested in persistence in entrepreneurial activities and firm performance. Pease indicate your level of agreement with each of the statements below. Please indicate your level of agreement with each of the statements below (1 = Strongly disagree; 7= Strongly agree).

	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	6	7
When others give up entrepreneurship, I keep going	1	2	3	4	5	6	7
When others oppose me starting a business, I still stick with it.	1	2	3	4	5	6	7
Whenever I encounter any difficulties or setbacks, I insist on starting a business.	1	2	3	4	5	6	7
Entrepreneurship increases my life satisfaction	1	2	3	4	5	6	7
When starting a business, I often suspend work at hand to perform other duties.	1	2	3	4	5	6	7
I put more effort into starting a business than anyone else.	1	2	3	4	5	6	7

Section 4: In this next section I am interested in the background of your company.

Please indicate the amount of annual sales:

_____ Less than \$ 499,999	_____ \$ 3,000,000 to \$ 3,499,999
_____ \$ 500,000 to \$ 999,999	_____ \$ 3,500,000 to \$ 3,999,999
_____ \$ 1,000,000 to \$ 1,499,999	_____ \$ 4,000,000 to \$ 4,499,999
_____ \$ 1,500,000 to \$ 1,999,999	_____ \$4,500,000 to \$4,999,999
_____ \$ 2,000,000 to \$ 2,499,999	_____ More than \$ 5 Million
_____ \$ 2,500,000 to \$ 2,999,999	_____

Please indicate the total number of employees in your firm. _____

Please indicate your firm Industry

Accommodation and Food Services (18)

Administrative and Support and Waste Management and Remediation Services (11)

Agriculture, Forestry, Fishing and Hunting (1)

Arts, Entertainment, and Recreation (15)

Construction (3)

Educational Services (14)

Finance and Insurance (7)
Health Care and Social Assistance (12)
Information (16)
Management of Companies and Enterprises (10)
Manufacturing (4)
Mining, Quarrying, and Oil and Gas Extraction (2)
Other Services (except Public Administration) (19)
Professional, Scientific, and Technical Services (9)
Public Administration (20)
Real Estate and Rental and Leasing (8)
Retail Trade (6)
Transportation and Warehousing (13)
Utilities (17)
Wholesale Trade (5)

Section 4: In this next section I am interested in your background.

Your Age: _____ years.

Gender: ___ Male ___ Female

Education: _____ High school _____ Undergraduate _____ Graduate

Serial entrepreneur (if you had started multiple business previously) Yes _____ No _____

Which year was your company founded?

What is the % of your ownership?



Thank you very much for your participation!

Xiaowen He

University of North Carolina at Charlotte; Belk College of Business; 9201 University Blvd,
Charlotte, NC 28223

Email: xhe12@uncc.edu