

**Pace University**

**The impact of autonomy, firm age, networks, and  
knowledge sharing on entrepreneurial learning and  
performance**

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A Dissertation Submitted to  
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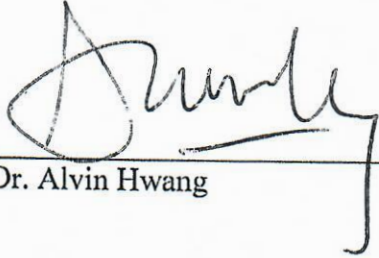
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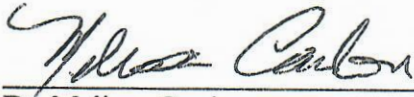
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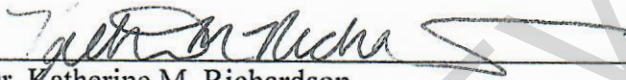


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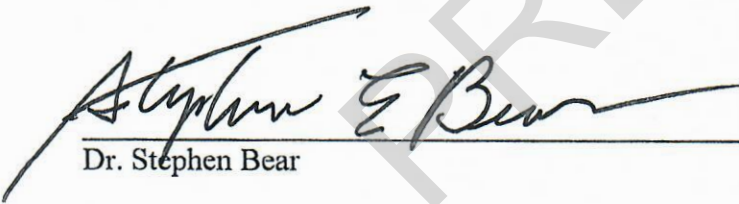
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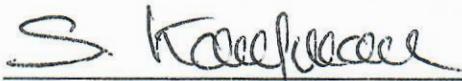
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## **Abstract**

The need for autonomy in entrepreneurship is regarded as one of the hallmark traits affecting entrepreneurship venture launch, task performance and persistence. This study evaluates the role autonomy might play in triggering the entrepreneurial learning process. In particular, this study proposes a model identifying direct and indirect paths through which autonomy affects entrepreneurial learning; how entrepreneurial learning is influenced by venture age, knowledge sharing and social network; how entrepreneurial learning, social network and knowledge sharing affect entrepreneurs' performance; and how venture age, social network and knowledge sharing interact with each other. The results of the study indicate autonomy has a positive correlation with social network, entrepreneurial learning, and knowledge sharing. Further, social network has a positive correlation with entrepreneurial learning, knowledge sharing, and venture performance. In addition, none of the relationships for venture age were found to be significant. Moreover, there were no significant positive correlations between entrepreneurial learning and venture performance; between knowledge sharing and entrepreneurial learning; or knowledge sharing and venture performance. Implications of the model are discussed.

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## **Chapter 1**

### **Introduction**

One key debate in the entrepreneurship literature is whether entrepreneurs are born or made. At the heart of this debate is the question of whether individuals can learn how to be better entrepreneurs or whether the success of their ventures is primarily contingent on being born with innate traits and abilities compatible with entrepreneurship. In short, does entrepreneurial learning play a role in entrepreneurship? And, if it does, to what extent does enhanced autonomy contribute to entrepreneurs' ability to learn and share knowledge (within internal/external networks) and optimize performance?

In response to this debate, cognitive entrepreneurial models typically show entrepreneurial potential, defined as a "preexisting preparedness to accept [an] opportunity" (Krueger & Brazeal, 1994) directly triggers entrepreneurial intention to launch a venture. While other factors such as learning, prior experience, and networking might provide sociological grooming and enhance "entrepreneurial awareness" or "alertness" to recognize opportunities (Ardichvili, Cardozo, & Ray, 2003; Kirzner Israel, 1973; Shapero, 1975), their impact on venture launch is deemed distal compared to the more stable/direct influences of entrepreneurial potential and intention.

Other researchers have identified several socio-cognitive, personality traits and situation-based determinants to explicate why some individuals have the potential to successfully navigate entrepreneurship while others do not. Research on innate

individual traits focus on risk tolerance (Raffiee & Jie, 2014); extraversion (Block, Sandner, & Spiegel, 2015; Singh, Saghafi, Ehrlich, & De Noble, 2010); self-efficacy (Ajzen, 1985); gender (Amatucci & Crawley, 2011; Boden & Nucci, 2000); and ethnicity (Aldrich & Waldinger, 1990; Krueger, Liñán, & Nabi, 2013).

Research showing entrepreneurs are made focuses on teachable individual skills as viable mechanisms to enhance entrepreneurship success. These teachable skills include: networking (Hampton, Cooper, & McGowan, 2009); technology (Hampton et al., 2009); foreign language (Constant, Shachmurove, & Zimmermann, 2007; Oviatt, McDougall, & Marvin, 1995); as well as technical skills, education and experience (Frid, Chowdhury, & Green, 2016a; Hejazinia, 2015).

Research further infers individual situations can make them become entrepreneurs if their need for financial/emotional stability and security is satisfied prior to or as a consequence of entering entrepreneurship (Adrien, Kirouac, & Sliwinski, 1999; Licht & Siegel, 2006). Specific individual situations include: financial stability from having windfall inheritance (Blanchflower & Oswald, 1998), lottery win or gift (Aldrich & Martinez, 2001; Blanchflower & Oswald, 1998; Krueger, Reilly, & Carsrud, 2000); emotional security of having role models or prior entrepreneurial experience (Burke, FitzRoy, & Nolan, 2008; Krueger, 1993); security/stability relating to age or career lifecycle (Oplatka, 2010; Solinge, 2014); and access to capital from family, friends or financial institutions (Dyer, Nenque, & Hill, 2014; Frid, Wyman, & Coffey, 2016b; Frid, Wyman, Gartner, & Hechavarria, 2016c).

With respect to affect/emotion, studies argue intense positive emotion such as entrepreneurial passion (Cardon, Gregoire, Stevens, & Patel, 2013; Gielnik, Spitzmuller,

Schmitt, Klemann, & Frese, 2015) is the lifeblood of triggering and sustaining entrepreneurship. While entrepreneurial passion is not a personality trait, it is an enduring quality (Cardon, Wincent, Singh, & Drnovsek, 2009), making it unlikely to be a teachable quality. Other studies argue negative emotions, such as anticipated and experienced regret, might also affect launching entrepreneurial ventures (Lecci, Okun, & Karoly, 1994). Negative emotions also play a pervasive role in performing key entrepreneurial behaviors (Lecci et al., 1994) including setting and attaining high goals for revenue growth, job creation and profitability (Baum & Locke, 2004; Van Gelderen, Kautonen, & Fink, 2015). Similar to entrepreneurial passion, it is unlikely that negative affect/emotion is teachable; however, research shows entrepreneurs can be taught to regulate negative affect/emotion to minimize aversive consequences (Fang He, Sirén, Singh, Solomon, & von Krogh, 2017; Seckler, Funken, & Gielnik, 2017; Shepherd, 2003).

Finally, other studies show a number of environmental factors can catalyze or inhibit successful entrepreneurship. These factors include a country's overall economic stability and level of employment (Biehl, Gurley-Calvez, & Hill, 2014; Martí & Fernández, 2015); cultural acceptance of entrepreneurship; and entrepreneurs' ability to align with financial institutions and other relevant networks (Licht & Siegel, 2006). Collectively, these factors influence the level of uncertainty and munificence in the environment. Possibly, training, or experiential learning might make entrepreneurs more aware of how to navigate environmental uncertainty and varying levels of munificence.

For individual determinants (trait, skill, situation, affect/emotion), research generally suggests individuals with higher levels of these attributes are more likely to

become successful entrepreneurs (Burke et al., 2008; Cardon et al., 2009; Hampton et al., 2009; Hejazinia, 2015; Krueger, 1993). For environmental determinants, research generally suggests more individuals will form new business ventures in societies with cultures valuing innovation, risk-taking and entrepreneurship; and where there is the ability to align with networks and gain support from politicians, banks and other lending institutions (Cuervo, 2005; Licht & Siegel, 2006).

So far, we have seen research supporting both argument that entrepreneurs are born (trait-based research) as well as made (skills-based research). While the debate, over whether entrepreneurs are born or made might never be settled, one thing is certain - learning is a requirement of successful entrepreneurship (Harrison & Leitch, 2005), particularly given the high level of uncertainty in their environment (Sosna, Treviño-Rodríguez, & Velamuri, 2010; Ucbasaran, Shepherd, Lockett, & Lyon, 2013). Hence, irrespective of how individuals become entrepreneurs (through innate abilities or training), the ensuing process of successfully operating, growing, and sustaining venture performance, might necessitate extensive learning. In fact, research shows effective entrepreneurs are required to be “exceptional learners”, learning from everyone and everything, including customers, suppliers, competitors, employees, associates, and other entrepreneurs (Harrison & Leitch, 2005; Smilor, 1997).

Despite the prominence of learning in everyday entrepreneurial life, there is limited range and depth of entrepreneurial learning research (Harrison & Leitch, 2005; Wang & Chugh, 2014). In contrast, there is extensive literature on the impact of learning in a traditional organizational context, particularly on performance (Baker, Grinstein, & Harmancioglu, 2016; Gupta, Dutta, & Xiujian, 2014; Kropp, Lindsay, & Shoham, 2006;

Lynn, Skov, & Abel, 1999). As such, there has been a clarion call for building entrepreneurial learning theory (Krueger, 2003); however, to date, the application of organization learning concepts to entrepreneurship remains limited (Harrison & Leitch, 2005; Secundo, Schiuma, & Passiante, 2017).

Attempts to apply organizational learning constructs in entrepreneurship literature are fragmented and ad hoc in nature (Harrison & Leitch, 2005) with inconsistent philosophical and methodological approaches (Macpherson & Jones, 2010; Wang & Chugh, 2014). It is further inferred, while entrepreneurship research could borrow from organizational learning literature, more constructs about learning should emanate from the already rich entrepreneurial context (Harrison & Leitch, 2005). As such, research suggests future studies will enhance the entrepreneurial learning literature if they explore the interface between organizational learning, knowledge management and the entrepreneurial context (Harrison & Leitch, 2005).

## **Importance of Entrepreneurial Learning**

Understanding how entrepreneurs learn is important because they are unique; hence, there might be nuances to how they learn and share knowledge in internal and external networks. For instance, research shows entrepreneurs are “markedly different people” compared to the general population (Holcomb, Ireland, Holmes Jr, & Hitt, 2009; Liechti, Loderer, & Peyer, 2014). Specifically, studies show entrepreneurs are more overconfident, risk seeking, have shorter industry experience (although same management experience), are younger and typically male (Liechti et al., 2014). Research also shows entrepreneurs’

cognitive processes differ from non-entrepreneurs' with the former focusing on the future and engaging in less counterfactual thinking (Baron, 2000; Keh, Foo, & Lim, 2002).

Exploring entrepreneurial learning is also important given the critical role entrepreneurship plays in the global economy. Research shows economists typically view entrepreneurs as catalysts for innovation and economic progress (Andersen, 2012; Becker, Knudsen, & Swedberg, 2012; Schumpeter, 1934), largely because entrepreneurs possess characteristics and personality traits that encourage innovation and job creation (Schumpeter, 1934). Further, Schumpeter (1947) argued entrepreneurial innovation activity is instrumental to economic change in capitalist society and studying creative response in business is synonymous with studying entrepreneurship. Moreover, entrepreneurship is generally regarded as a key ingredient for economic growth in many countries; hence, governments attempt to increase entrepreneurial activities (Gardner, McGowan, & Sissoko, 2014; Gries & Naudé, 2009; Hall, Nikolaev, Pulito, & VanMetre, 2013).

While there is no unified definition for entrepreneurship (Landström, Harirchi, & Åström, 2012; Sorensen & Chang, 2006), the term employed in this study is more recently defined as the “process of starting and continuing to expand new businesses (Gries & Naudé, 2009; Hart, 2003).” Previously, Schumpeter made a key distinction between the creativity and innovation of an “inventor” versus an “entrepreneur” and argued an inventor “produces ideas, the entrepreneur gets things done, which may but need not embody anything scientifically new (Schumpeter, 1947).” Definition of entrepreneurship aside, there is little doubt entrepreneurs are important to the global economy. Moreover, studies show entrepreneurial learning enhances performance

(Balasubramanian, 2011), which could lead to greater job creation.

While the quality of jobs created by entrepreneurship has been challenged (Litwin & Phan, 2013), there is general agreement regarding the quantity of jobs created by entrepreneurship (Birch, 1987; Birch, 1981; Neumark, Wall, & Zhang, 2011). For instance, research finds the credit for job creation is largely attributed to new ventures (Decker, Haltiwanger, Jarmin, & Miranda, 2014; Haltiwanger, Jarmin, & Miranda, 2013), noting entrepreneurship deserves virtually all the credit for job creation during the 25-year period commencing in 1980 (Haltiwanger, Jarmin, & Miranda, 2009). The impact of entrepreneurship on job creation is also found to occur in developing countries (Ayyagari, Demirguc-Kunt, & Maksimovic, 2014). For instance, research shows entrepreneurship stimulates job creation and eliminates poverty in developing countries such as China, Nigeria (Du & Banwo, 2015) and India (Eunni, Brush, Kasuganti, Todd, & Javalgi, 2007).

## **Autonomy, Venture Age, Network, Knowledge Sharing and Entrepreneurial performance**

Given Harrison & Leitch's (2005) recommendation to synthesize both entrepreneurial and organizational learning concepts, the goal of this study is to explore and integrate constructs germane to entrepreneurship organizational learning literature. Thus, this study first explores how autonomy, a key motivational construct already well-anchored in the entrepreneurship literature, might trigger the entrepreneurial learning process, thereby determining the level of learning in an entrepreneurship context. This

study examines research showing autonomy to trigger motivational processes which lead to job-related learning (Baker et al., 2016) and how autonomy might also impact learning effort and, thus, the extent to which individuals actually learn in entrepreneurship context (Wang & Netemeyer, 2002).

This study then explores how entrepreneurial learning might impact business venture performance by extending studies showing how learning could impact firm performance in a variety of US and foreign organizations (De Clercq & Lianxi, 2014; Real, Roldán, & Leal, 2014). Next, this study examines whether other factors might affect the entrepreneurial learning process. Here, the study explores the extent to which utilizing social networks (Baker et al., 2016; Van den Bulte & Wuyts, 2007; Yli-Renko, Autio, & Sapienza, 2001) might affect how entrepreneurs engage in knowledge sharing and how the relationship ultimately affects the level of entrepreneurial learning. The study also explores the role of venture age based on studies showing venture age could impact entrepreneurs' ability to learn and acquire knowledge (Sinkula, 1994; Sørensen & Stuart, 2000).

## **Study Contributions**

Given the critical role of entrepreneurship in the global economy, from a practical standpoint, it is useful to understand how entrepreneurs learn and the extent to which learning and knowledge sharing through social networks could enable their ventures to fuel the job creation engine. From a philosophical perspective, it might also be empowering for individuals to know whether they can become better entrepreneurs and enhance their



venture performance through entrepreneurial learning (example through skills or experiential training). The study also seeks to contribute to the entrepreneurship literature by exploring a framework integrating autonomy (rooted in entrepreneurship) and venture age with broader organizational learning constructs relating to learning, social network and knowledge sharing as well as the related impact on performance. While the entrepreneurship and organizational literature have enhanced our understanding of these individual constructs, the combination of the constructs presented in this study have typically not been explored. Also, many of the entrepreneurial learning studies are conceptual or qualitative (typically employing six or fewer case studies). Thus, this study provides an empirical perspective that could add to our understanding on how entrepreneurs learn and share knowledge in internal/external networks.

The remainder of the dissertation is organized as follows: in chapter two, the dissertation begins with an overview exploring hypothetical relationships between autonomy, entrepreneurial learning, and venture performance. The chapter then explores relationships between venture age, social networks, knowledge sharing and entrepreneurial learning and the extent to which some of these variables might separately affect venture performance. Following that, the study presents a model of entrepreneurial learning. Chapter three discusses methods (including research design, data sources, procedures, and measures). Chapter four presents the results of the study; chapter five includes discussion and conclusions; and chapter six offers limitations and recommendations for future research. Following this material are appendices including the adapted entrepreneurial survey, a reconciliation to the original survey scale and references for the study.

## Chapter 2

# Literature Review and Hypotheses Development

### Summary of Key Variables In Learning Literature

As previously noted, the goal of this study is to explore and integrate constructs germane to entrepreneurship organizational learning literature. **Table I** summarizes a sample of studies on entrepreneurial learning, indicating that autonomy, entrepreneurial learning, knowledge sharing, social network and performance are recurring themes. Each of these variables are discussed following the summary in **Table I**.

**Table I: Review of Literature Focusing on Entrepreneurial Learning**

Authors	Context	Constructs	Study Type
Ben Mahmoud-Jouini, Paris, & Bureau (2017)	learning opportunities arising from entrepreneurial actions	Entrepreneurial learning	Qualitative (Case Studies)
Brinckmann, J., Grichnik, D., & Kapsa, D. (2010)	Knowledge sharing through coopetition/networks	Social networks; knowledge sharing	Empirical
Cai, L., Guo, R., Fei, Y., & Liu, Z. (2017)	Effectuation, exploratory learning in Chinese Ventures	Entrepreneurial learning; performance	Empirical
Cannavacciuolo, L., Bandola, L., Ponsiglione, C., & Zola, G. (2017)	Learning by failure versus learning by habits	Entrepreneurial learning; social networks	Computer Simulation
Collin, A., García-Canal, E., & Guillén, M. F. (2013)	Exploration in an Italian and a Spanish firm	Autonomy, exploration	Qualitative (Case Studies)
Cope, J., & Watts, G. (2000)	Learning by doing (learning from experience)	Entrepreneurial learning	Qualitative (Case Studies)

**Table I: Review of Literature Focusing on Entrepreneurial Learning (continued)**

<b>Authors</b>	<b>Context</b>	<b>Constructs</b>	<b>Study Type</b>
Cope, J. (2011)	Learning from failure; recovery and re-emergence from failure	Entrepreneurial learning	Qualitative (Case Studies)
De Massis, A., Frattini, F., Pizzurno, E., & Cassia, L. (2015)	Exploration in Italian firms; role of high vs. low autonomy	Autonomy, exploration	Qualitative (Case Studies)
Denrell, J. (2003)	Vicarious learning, noisy data, under-sampling of failure	Entrepreneurial learning	Economic Model
El-Awad, Z., Gabrielsson, J., & Politis, D. (2017)	Team level learning in technology-based ventures	Entrepreneurial learning; performance	Conceptual
Fang He, V., Sirén, C., Singh, S., Solomon, G., & von Krogh, G. (2017)	Learning from failure; role of emotion regulation (US/ Finland)	Entrepreneurial learning	Empirical
Frid, C. J., Chowdhury, I., & Green, C. G. (2016)	Experiential learning in entrepreneurial education	Entrepreneurial learning	Conceptual
Gast, J., Kallmünzer, A., & Kraus, S. (2017)	Knowledge sharing through coopetition/ networks	Social networks; knowledge sharing	Qualitative (Case Studies)
Gemmell, R. M. (2017)	Entrepreneurs' learning styles (reflection vs. experimentation)	Entrepreneurial learning	Empirical
Goel, S., & Jones III, R. J. (2016)	Systematic review of research on exploration and exploitation	Exploration; exploitation	Conceptual
Günzel-Jensen, F., & Robinson, S. (2017)	Barriers to entrepreneurial learning/effectuation (classroom)	Entrepreneurial learning; effectuation	Conceptual
Holcomb, T. R., Ireland, R. D., Holmes Jr, R. M., & Hitt, M. A. (2009)	Entrepreneurial experiential and vicarious learning; knowledge sharing	Entrepreneurial learning; knowledge sharing	Conceptual
Hsu, D. K., Shinnar, R. S., Powell, B. C., & Betty, C. S. (2017)	Learning from prior experience predicts re-entry intention	Entrepreneurial learning	Empirical
Karataş-Özkan, M. (2011)	Dynamic learning in networks from repeated contacts/activities	Entrepreneurial learning; networks	Qualitative (Case Studies)
Kolb, A. Y., & Kolb, D. A. (2009)	Experiential learning; entrepreneurial education	Entrepreneurial learning	Conceptual
Lumpkin, G. T., Brigham, K. H., & Moss, T. W. (2010)	Long-term orientation in family businesses	Exploration; exploitation; performance	Conceptual

**Table I: Review of Literature Focusing on Entrepreneurial Learning (continued)**

<b>Authors</b>	<b>Context</b>	<b>Constructs</b>	<b>Study Type</b>
Martin, F., & Smith, R. (2010)	Learning from prior experience	Entrepreneurial learning; networks	Qualitative (Case Studies)
Minniti, M., & Bygrave, W. (2001)	Learning by doing and from prior experience	Entrepreneurial learning	Economic Model
Passaro, R., Quinto, I., & Thomas, A. (2017)	Learning from start-up competitions	Entrepreneurial learning	Cross-Section Analysis
Pereira, D., Leitão, J., & Devezas, T. (2017)	Knowledge sharing through coopetition/networks (Europe)	Social networks; knowledge sharing	Probit Analysis
Politis, D. (2005)	Exploration/exploitation and experiential learning	Experiential learning; exploration; exploitation	Conceptual
Rae, D. (2000)	Understanding learning through entrepreneurs' life stories	Entrepreneurial learning	Qualitative (Case Studies)
Rae, D. (2005)	Learning as a negotiated process/narrative model	Entrepreneurial learning	Qualitative (Case Studies)
Rae, D., & Carswell, M. (2000)	Understanding learning through entrepreneurs' life stories	Entrepreneurial learning	Qualitative (Case Studies)
Saemundsson, R. J., & Candi, M. (2017)	Role of absorptive capacity in opportunity identification	Entrepreneurial learning; absorptive capacity	Empirical
Seckler, C., Funken, R., & Gielnik (2017)	Learning from failure; emotion regulation; autonomous learning	Entrepreneurial learning; autonomy	Conceptual
Secundo, G., Del Vecchio, P., Schiuma, G., & Passiante, G. (2017)	Learning processes (including intuition, sensing, experiential)	Entrepreneurial learning	Conceptual
Secundo, G., Schiuma, G., & Passiante, G. (2017)	Integrating entrepreneurship and organization learning	Entrepreneurial learning	Qualitative (Case Studies)
Soetanto, D. (2017)	Learning and coping with difficulties through networks	Entrepreneurial learning; networks	Qualitative (Case Studies)
Sosna, M., Treviño-Rodríguez, R. N., & Velamuri, S. R. (2010)	Learning through exploration/ exploitation	Exploration; exploitation; knowledge sharing	Qualitative (Case Studies)
Tsai, W. (2002)	Coopetition as a knowledge sharing mechanism	Knowledge sharing; coopetition	Empirical
Ucbasaran, D., Shepherd, D. A., Lockett, A., & Lyon, S. J. (2013)	Learning from failure	Entrepreneurial learning	Conceptual

**Table I: Review of Literature Focusing on Entrepreneurial Learning (continued)**

<b>Authors</b>	<b>Context</b>	<b>Constructs</b>	<b>Study Type</b>
Valaei, N., Rezaei, S., & Ismail, W. K. W. (2017)	Impact of learning strategies, creativity on innovation performance	Learning; exploration; exploitation; performance	Empirical
Zahra, S. A., Abdelgawad, S. G., & Tsang, E. W. K. (2011)	Learning/unlearning (emerging multi-nationals in developed economies)	Entrepreneurial learning and unlearning	Conceptual

### ***Autonomy and Entrepreneurial Learning***

The need for autonomy (independence) is well-studied in the entrepreneurial literature (Carree & Verheul, 2011; Matlay & van Gelderen, 2010; Van Gelderen & Jansen, 2006), making it a viable construct to explore compatibility with organization learning constructs including knowledge sharing, and social networks. Autonomy conveys the felt ability to determine the nature of tasks or problems and to independently arrive at a course of action (Wang & Netemeyer, 2002). The need for autonomy also embodies individuals' desire for freedom and control over their work (Hackman & Oldham, 1975; Lu, Lin, & Leung, 2012). Extensive research also shows autonomy is the most cited or rated motivation for launching entrepreneurial ventures (Carland, Hoy, Boulton, & Carland, 1984; Hisrich, 1992; Shane, Locke, & Collins, 2003; Van Gelderen & Jansen, 2006; Westhead & Wright, 1998). Simply put, these studies demonstrate the need for autonomy is a critical trigger for venture creation and a strong motivator for entrepreneurs to persist in their ventures.

The need for autonomy is deemed to be a key motivational trigger for venture creation because entrepreneurs as a group prefer to be their own bosses and make their own decisions (Alderfer, 1969; Wu, Matthews, & Dagher, 2007). Moreover, it is argued

entrepreneurs particularly appreciate the autonomy of not being embedded in a corporate hierarchy (Block et al., 2015). Further, the entrepreneurship literature regards individuals' need for autonomy as a formidable intrinsic or "non-pecuniary motivation" (Licht & Siegel, 2006) and contributor to enhanced job-satisfaction, happiness and well-being (Block et al., 2015; Carree & Verheul, 2011).

Beyond its role in venture launch, job-satisfaction, happiness and well-being, research shows there is a positive association between need for autonomy and entrepreneurial persistence (Gimeno, Folta, Cooper, & Woo, 1997). In other words, autonomy not only triggers entrepreneurial intention to launch ventures but might also sustain individuals' long-term intention to remain or persist in their ventures. Conversely, research shows individuals might quit self-employment if autonomy is lacking, even if there is financial success (Matlay & van Gelderen, 2010). Collectively, these studies illustrate the critical role autonomy plays in the entrepreneurial process and therefore the potential for it to also affect entrepreneurial learning.

Hence, one key question is, to what extent does autonomy trigger entrepreneurial learning? Wang and Netemeyer (2002) infer autonomy is highly compatible with learning. The authors argue autonomy is relevant to learning because the perception of autonomy is a critical ingredient for learning through "enactive mastery". Learning through enactive mastery (Bandura, 1986, 1997) describes learning by doing or practicing and is deemed to be nurtured when individuals have high levels of autonomy or control over their daily work (Wang & Netemyer, 2002). For instance, in ordinary life, learning to play an instrument or speak a foreign language might be enhanced if individuals have the autonomy to select the instrument or language as well as to create

the time to practice and take lessons. Similarly, the greater the autonomy entrepreneurs have over their activities, the greater their desire to learn (Wang & Netemeyer, 2002). Given entrepreneurship offers greater autonomy compared to traditional employment, it would be expected that such freedom could enhance their ability to learn.

Further, learning through enactive mastery (learning by doing) is deliberate and involves significant “learning effort” to develop new knowledge (De Clercq & Lianxi, 2014; Wang & Netemeyer, 2002). Learning effort describes the amount of time and energy individuals devote to acquiring skills and knowledge on a continuous basis (Wang & Netemeyer, 2002). In addition, learning effort expenditure is regarded as one of the key determinants of individual accomplishment (Bandura, 1997; Wang & Netemeyer, 2002).

Research also finds individuals are more highly motivated to expend effort to learn when they perceive control over their own effort level and their effort level enhances performance (Bandura & Cervone, 1986; Wang & Netemeyer, 2002). In other words, autonomy increases learning effort when such effort is deemed to be instrumental to positive venture performance. Further, the link between autonomy and learning effort occurs because autonomy produces feelings of personal responsibility for performance success or failure and unleashes feelings of freedom and creativity (Tyagi, 1985; Wortman & Brehm, 1975). Consequently, individuals with strong desire for autonomy are more likely to be motivated to exert the effort to enhance performance by engaging in continuous learning activities to develop skills and abilities (Wang & Netemeyer, 2002).

Collectively, these studies infer autonomy or desire for self-control and self-management could also impact entrepreneurial learning. For instance, research shows entrepreneurs freely engage in a variety of learning activities to develop knowledge and

skills that might enhance their venture success (Zin & Egbu, 2011). Mechanisms through which entrepreneurs choose to learn include: self-study, social networks, mentoring programs, training, internet or other knowledge sharing mechanisms (Zin & Egbu, 2011).

Entrepreneurial research further shows autonomy is linked to how ventures learn to explore or exploit performance enhancing opportunities (Colli, García-Canal, & Guillén, 2013; De Massis, Frattini, Pizzurno, & Cassia, 2015; Goel & Jones III, 2016; Lumpkin, Brigham, & Moss, 2010), with a focus on long-term exploration having a higher positive impact on performance (Lumpkin et al., 2010; Valaei, Rezaei, & Ismail, 2017). In other words, when entrepreneurs feel they have autonomy over their circumstances and environment, they tend to engage in long-term exploration of innovation (Lumpkin et al., 2010), which requires the acquisition and utilization of new knowledge (Benner & Tushman, 2002; Cohen & Levinthal, 1990). Conversely, entrepreneurs might engage in exploitation when environments are uncertain and they have little or no knowledge of how to navigate such uncertainty (Lumpkin et al., 2010).

More recently, a number of studies argue entrepreneurship provides an ideal context for exploring “autonomous learning” given the high levels of autonomy and freedom in decision-making (Cope, 2005; Frese & Keith, 2015; Seckler et al., 2017). Thus, entrepreneurs can either deliberately utilize their autonomy to engage in learning activities to enhance their skills and knowledge or unintentionally learn as they go through experimentation and ensuing failures (Seckler et al., 2017). This link between autonomy and entrepreneurial learning is consistent with Matlay and van Gelderen’s (2010) position that entrepreneurial education should reflect entrepreneurs’ autonomy and desire for control by enabling student entrepreneurs to make decisions regarding